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When a patient has advanced beyond the puerperal state and subinvolution still persists, notwithstanding all our efforts to remedy the condition, relief may be looked for in pregnancy. If the patient becomes pregnant the uterus may, in its natural evolution and in its subsequent involution, if no contrary condition hinders, return to its natural size again.

Subinvolution of the Vagina.—In the vagina, as in the uterus, the process of hypertrophy and development continues throughout pregnancy, to be followed after delivery by a process of involution almost identical in its method and purpose with that which occurs in the uterus. By this means the vagina is restored, in about two or three months, very nearly to its normal nulliparous condition, remaining permanently, however, a little larger than before. This perfect result is, unfortunately, by no means always accomplished, and subinvolution of the vagina is, like subinvolution of the uterus, of common occurrence.

The causes of incomplete involution of the vagina are, for the most part, those that have already been assigned as factors in the production of uterine subinvolution, the latter almost always being accompanied by more or less vaginal subinvolution. The cause which most uniformly and certainly interferes with the process of involution in the vaginal walls is, without doubt, laceration of the perineum or pelvic floor. While laceration of the perineum in its entire thickness is common, laceration of the posterior vaginal wall, together with the inner portion of the perineal body, is, if possible, a still more frequent accident, and is followed by more disastrous results. When a rupture extends through the fourchette, and even more deeply into the skin of the perineum, the injury cannot fail to be noticed by the most casual observer; but when internal inspection is necessary to disclose the rent the chances are strongly against its discovery. The average physician considers his duty done when he inspects the perineum externally, and to his great satisfaction finds that "not even the fourchette is torn," forgetting or not knowing the fact, so strongly insisted upon by Mathews Duncan, that the point at which laceration usually, and in primiparæ almost inevitably, begins is at the ostium vaginæ, not at the ostium vulvæ—at the plane of the hymen, not at the fourchette. In examining the perineum after labor, therefore, look carefully to the mucous surface.

Prophylactic methods of treatment will be the same as those outlined above for subinvolution of the uterus, especial stress being laid upon the care of the perineum both during and after labor. Curative treatment, after known or possible factors in the production of the disease have been removed, will consist in the use of douches, occasional applications of iodine, with insertion of glycerin and alum tampons, and the employment of electricity. While both the faradic and the galvanic currents are of utility, and many prefer the latter, my own preference is strongly for the former. By the employment of a bipolar electrode active contraction of the muscular fibres is brought about, their tone is thereby improved, passive hyperemia is removed, absorption is stimulated, and the uterus is more firmly supported.

Operative interference is often called for to repair old injury to the perineum or cervix, to remove cystocele and rectocele, or to narrow and shorten a redundant vagina, which, by the simpler means mentioned, cannot be reduced to the normal.

III. SUPERINVOLUTION.—Nominally, superinvolution is an excess of involution, by which the uterus is reduced to less than its normal size, yet it is an open question whether just this process really occurs. Undoubtedly cases are noted, and with increasing frequency, in which, at some time after the completion of puerperal convalescence, the uterus is found in a state of atrophy; but is this atrophy due to excess of the normal process with failure in the regeneration of muscular fibre; or is it not rather fibrous contraction following upon actual inflammation or occurring as a sequence of subinvolution; or, finally, is it not possibly a result of disease of the ovaries

by which their function is destroyed, and hence corresponding to the senile atrophy of the menopause? The present attitude of the profession toward this disease is one of observant scepticism. It is too soon for any one to assert dogmatically that superinvolution, pure and simple, does not exist; yet before making that diagnosis in any case it would be well to consider carefully if there be not some other disease of which the atrophied uterus is merely an expression or consequence. Even the classical case of Simpson—the case which first suggested to his mind the title under consideration—is more likely to have been one of premature atrophy and cessation of function due to tuberculous disease.

But whatever opinion may be held concerning the accuracy of the term, it must be admitted by all that uterine atrophy does occur, without apparent cause, in a certain number of cases, not long after delivery, and to this condition has rightly or wrongly been given the name superinvolution. That the condition is a rare one is shown by the scarcity of reported cases, and by the fact that most writers upon the diseases of women ignore the subject completely.

As regards the pathology of superinvolution, it can only be said that the uterus resembles that organ in a state of senile atrophy. Observations are too few to afford any definite information concerning the morbid processes involved.

There are no distinctive or constant symptoms which belong to the disease, with the single exception of amenorrhœa, or scanty menstruation. Besides this, there is the ordinary train of symptoms common to many another form of uterine disease. Examination reveals simply a non-sensitive uterus, of less than the normal size and depth. The ovaries, if found at all, are commonly much smaller than normal, and are not infrequently bound down and compressed by adhesions.

The disease is a very intractable one, though the prognosis will vary in accordance with the pathological conditions which stand in causative relation to the atrophy. In some cases, diagnosticated as superinvolution, a cure has been achieved and pregnancy has followed; but it may be laid down as a rule that most cases will prove absolutely rebellious to treatment, and sterility will be permanent.

The only treatment which has been found of value is one having for its purpose stimulation of the uterus, and this is best accomplished by the conjoined use of moderate cervical dilatation and electricity. Either a Hanks or a steel-branched dilator may be used to stretch the cervix slightly every week or ten days. Rockwell recommends that both the faradic and the galvanic currents be utilized, and relates one case in his own practice in which menstruation was thus induced in a patient whose uterus measured but one and three-quarter inches. The poles of the faradic battery may be used indifferently, but when the galvanic current is employed Rockwell advises that the negative pole be placed within or against the uterus.

Rufus A. Kingman.
Revised by *Eugene E. Everett.*

REFERENCES.

[1] Transactions of the Royal Society of Edinburgh, vol. xxxv., p. 2, No. 8.
[2] Transactions of the American Gynecological Society, 1879, 1881, 1882.
[3] Annals of the Universal Med. Sciences, 1888.
[4] William Wood & Company, 1883, vol. ii., p. 8.
[5] Second edition, p. 710.
[6] American Journ. of Obstetrics, 1885.
[7] Prin. and Prac. of Gynecol., second edition, p. 447.
[8] Edinburgh Med. Journ., vol. xl., p. 524.
[9] Lessons in Gynecology, third edition, p. 544.
[10] Boston Med. and Surg. Journ., vol. ciii., p. 291.

UTERUS, VAGINA, ETC., TUBERCULOSIS OF.—The relationship between tuberculosis of the uterus, vagina, and vulva, and tuberculosis of the Fallopian tubes, ovaries, and peritoneum, is so close that in the general consideration of the subject it will be necessary to make reference to tuberculosis of the structures above the ute-

rus, which subjects do not strictly belong to this particular chapter. (For a full consideration of tuberculosis of the uterine appendages and peritoneum see the articles on *Fallopian Tubes, Diseases of; Ovaries, Diseases of;* and *Peritonitis, Septic and Tuberculous* [in the Appendix].)

GENERAL CONSIDERATIONS.—Tubercle bacilli gaining entrance to the circulatory systems of the body show what appears to be an elective preference for certain organs. Thus, in the order of frequency, it is found that the involvement affects the lungs, lymphatic glands, mucous membranes, serous membranes, bones, spleen, kidneys, adrenals, brain, genital organs, bladder, and skin. Age has an influence upon the relative susceptibility of the organs, the lungs being most frequently involved in adults, and the lymph glands, bones, joints, and meninges in children. In the female organs of reproduction the order of the frequency of involvement is: Fallopian tubes, uterus, ovaries, vagina, cervix, and vulva. As tuberculosis of these parts is frequently overlooked or mistaken for other lesions, this order may be subject to later modifications. Tuberculosis of the genitals is nearly seven times more frequent in women than in men. Gonorrhœal and other chronic inflammatory conditions appear to increase the susceptibility of the generative organs to tuberculosis.

That the more frequent involvement of certain parts of the body over others is due less to the portal of entry than to differences in the relative susceptibility of the organs themselves, is indicated by the observations made upon lower animals that have been infected by subcutaneous inoculation, intravenous injection, ingestion or inhalation of the bacilli. In such animals a tendency of the bacilli to grow more frequently and more luxuriantly in certain organs is observed. The susceptibility of a particular organ obviously is modified by the degree of general resistance to tuberculous infection possessed by the individual, and by the virulence of the special bacilli concerned. Against the most virulent forms of the tubercle bacilli it is probable that no man and few organs are immune, while other species of the micro-organisms are so attenuated as to be able to produce disease only in persons of greatly enfeebled resistance, and then only in the more vulnerable organs.

Although it is probable that the organs most frequently involved, such as the lungs and lymph glands, are, as a general rule, most susceptible, it is not improbable that in certain individuals the order of the relative resistance of the special organs varies. In this way may we explain the occasional primary colonization of tubercle bacilli in the female genital organs, despite their entrance into the body through the digestive and the respiratory tracts, or through some other remote portal. In such instances it may be that no lesion marks the point of entry of the bacilli, nor the channels traversed by the micro-organisms in passing to the reproductive organs.

CHARACTER OF THE INFECTION.—Much stress has been placed upon the question as to whether the lesion in the genital organ be primary, or the initial tuberculous focus in the body, or secondary to some other lesion in a contiguous organ or in a distant part from which the bacilli have been carried by the blood- or the lymph-stream. Practically, however, the secondary character of the disease of the genitalia has little influence upon the treatment in the case, provided that the primary lesion be of a trifling character. Far more important is the determination of the dominant, determining, or dangerous lesion in the body. Thus, a tuberculous uterus or ovary, whether primary or secondary, rarely requires the attention of a gynecologist in the presence of advanced pulmonary disease, yet is of great importance when the lesion elsewhere in the body, even though it be primary, is slight and stationary in character.

More important than either the primary or secondary nature of the disease—for this may have little influence upon the treatment—is the consideration of the mode of entry of the bacilli, which concerns the prophylaxis against these lesions. As a rule, however, the portal of entrance is

difficult to determine, as the bacilli may pass through the mucous membrane and traverse the lymphatic or blood channels without leaving any gross or microscopic evidence of their path. Again, evident primary lesions may indicate the portal of entry.

The bacillus may enter directly through the external genitalia, a condition known as *ascending* infection, or through contiguous organs and remote portions of the body, by means of the blood- or the lymph-stream, designated as *descending* infection.

MODE OF INFECTION.—Ascending infection may occur through contact with contaminated fingers or utensils. Thus, a consumptive may reinoculate herself by sputum carried on her hands, while the more serious danger of initial infection may attend the ministrations of a careless tuberculous physician, midwife, or nurse.

While it is difficult to offer the convincing evidence of concrete instances, the possibility of infection in coitus from disease of the genito-urinary organs, or from the use of tuberculous sputum as a lubricant, is to be considered. The descending form of infection is much the more frequent, although usually it is as difficult to determine the precise portal of entry as it is to give absolute evidence of the primary nature of the lesion. It is apparent that for the most part this will remain supposititious.

The bacilli may be directly carried in the blood or lymphatic vessels from the mucous membranes of the respiratory, digestive, or urinary systems, or from surface lesions of the skin, to the pelvic organs. Often primary lesions mark the path of the invaders, and not infrequently the genitalia are infected by proximity to tuberculous organs, such as the intestines and bladder, or because their peritoneal covering shares in a generalized tuberculous peritonitis.

CHARACTER AND FREQUENCY OF THE LESIONS.—The lesion may appear in the form of either gray or yellow miliary tubercles, cheesy or puriform foci, masses of imperfectly organized peritoneal exudate, granulation tissue, or chronic ulcerations of the mucous surfaces. The liquid exudate may differ from other inflammatory peritoneal effusions in the presence of small numbers of polymorphonuclear leucocytes and of fibrin, and the presence of many mononuclears and the tubercle bacilli. Most frequently the disease occurs in the form of miliary tuberculosis of the pelvic peritoneum, and is but a part of a more generalized process. At times the tubercles, which appear as slightly raised, firm, grayish or yellowish nodules, from 1 to 3 mm. in diameter, are limited in their distribution to the peritoneal covering of the uterus and its appendages, and may or may not be associated with pelvic exudate and adhesions.

The Fallopian tubes are affected more frequently than any of the other reproductive organs. Besides the form in which only the peritoneum is involved, there is the interstitial type, in which the tube shows a great thickening of its walls, the presence of tubercles, and at times of a serous inflammatory œdema in the muscular walls. Finally, the chief involvement may be the mucous lining, which may show miliary tubercles, or, if the process be advanced, ulceration, or the mucous lining of the tube may be entirely destroyed and the organ greatly distended by a puriform or caseous material. This resembles a pyosalpinx, but the microscope shows the fluid to consist largely of necrotic substance rather than of pus. There is also less tendency for the ostium to become closed than in other forms of salpingitis.

The tube may contain many ounces of fluid, giving it an enormous size. Localized collections of a more or less puriform fluid, walled by masses of exudate and adherent organs, may be mistaken for ovarian cysts. The ovary may be infiltrated by tubercles or distended by large necrotic and cheesy foci.

In the uterus, apart from the miliary tuberculosis of its peritoneal covering, the disease chiefly attacks the endometrium. Miliary tubercles, ulcers, or, when the process is more progressive, the destruction of the endometrium and adjacent muscularis, and the distention of the

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uterine walls with caseous material, may occur. This process usually begins in the fundus, and may be especially marked at the cornua. Rarely does it pass the internal os. In the early stage a fine nodular roughening of the endometrium may be detected, but this may be indistinct, and a precise diagnosis is possible only after microscopic study. Later, irregular ulcers with yellowish necrotic bases and edges infiltrated by tubercles may be formed. A diffuse caseous necrosis with a complete destruction of the endometrium is the most common form in the uterus. It may occur in childhood, in middle or in advanced life. The internal os may be obstructed, and the process at times advances to the point of causing a perforation of the muscular wall of the uterus. Rarely there may develop in the uterus a pure interstitial or muscular form that may progress until it produces a perforation into the abdominal or uterine cavity. Early in the process such an involvement may predispose to uterine rupture during pregnancy or labor.

Primary tuberculosis of the uterus is very rare. It is usually secondary to tuberculosis of the Fallopian tubes or to phthisis pulmonalis. As a secondary condition it is not uncommon, and in such cases the tuberculous process is usually limited to the corpus, the cervix being healthy. On the other hand, in the rare cases in which the cervix is attacked, the corpus is usually normal. Merletti (*Archivio di Ostet. e Ginec.*, December, 1901) states that in one hundred and seventy-two cases of genital tuberculosis, seventy-five had the uterine body affected.

Tuberculosis of the cervix usually proceeds to the formation of ulcers or fungating papillary masses. The ulceration may extend over the vaginal portion of the cervix, the base of the ulcer showing reddish granulations and a superficial mass of caseous necrosis. Minute, firm, grayish or yellowish tubercles may be present throughout the surface of the ulcer or in the adjacent tissue. In the papillary form masses occur within the canal, and the clinical picture resembles that of carcinoma. There is, however, less bleeding on manipulation, and the induration is less wooden. Tuberculosis of the cervix is very rare. The first case was described by Virchow ("von Rud. Tuberkulose der Scheide," *Virchow's Archiv*, Bd. v., p. 404). In the majority of cases of cervical tuberculosis, tuberculosis of the vagina has been present. Tuberculosis of the corpus seldom exists in conjunction with tuberculosis of the cervix. J. Whitridge Williams ("Tuberculosis of the Female Generative Organs," Johns Hopkins Hospital Reports, 1892, vol. iii., p. 85) was able to collect only seven cases. It is probable that certain cases of tuberculosis of the cervix have been diagnosed as instances of cancer, thus forming a possible source of error in estimating the permanent results of hysterectomy for cancer of the cervix.

In the vagina and upon the labia miliary tubercles and irregular ulcers with indurated yellowish or reddish bases and thickened borders have in rare instances been noted. In the vagina the posterior wall is the seat of election for the disease. Tuberculosis of the vagina is usually secondary to tuberculosis of the higher portions of the genital tract, though it may occur independently of any tuberculous infection of the rest of the genitalia. Tuberculous ulcers may perforate the wall of the vagina and, according to their location, lead to the formation of recto-vaginal and vesico-vaginal fistula.

The lupus occurring upon the vulva resembles that which occurs upon other portions of the body. The vulva is less often the seat of tuberculosis than any portion of the genitalia. J. Whitridge Williams ("Tuberculosis of the Female Generative Organs," Johns Hopkins Hospital Reports, 1892, vol. iii., p. 85) was able to collect only three cases in which the diagnosis, based upon microscopic and bacteriologic examinations, was undoubted. Many cases of supposed lupus have been due to syphilis or to non-tuberculous ulceration.

It seems probable that the supposed rarity of the disease below the Fallopian tubes is due in part to the lack of pathologic or bacteriologic study of obscure lesions.

Under the microscope the tubercles found in the genitalia resemble those found elsewhere in the body, frequently combining giant cells and caseous centres with a peripheral zone of epithelioid and lymphoid cells.

DIAGNOSIS.—Cover-glass smears made from the secretions of the uterus or local lesions when properly stained may show the characteristic bacilli. Care should be taken by inoculation experiments, or other tests, to exclude the smegma bacillus.

The most delicate reaction is by the injection of suspected secretion into the peritoneal cavities of guinea-pigs. In from three to six weeks, should virulent tubercle bacilli be present in the secretion, the animals will show a characteristic involvement of the organs. Uterine scrapings, scrapings or sections from ulcers, when sectioned and stained, may show characteristic tubercles or the bacilli. I have observed typical tubercles in bits of granulation tissue scraped from a pelvic sinus. In doubtful cases, inoculation experiments in the lower animals should be carried out.

Clinically, tuberculosis is to be thought of when a marked salpingitis, perimetritis, or endometritis occurs in young children or in adults, provided we can exclude gonorrhœal or puerperal infection. The diagnosis is rendered more probable when tuberculous foci are present in the lungs or other organs. Tuberculosis of the vulva, vagina, and cervix may be suspected when these tissues are infiltrated or ulcerated. The lesions resemble those of tuberculosis upon other mucous structures, but the diagnosis must rest upon histologic and bacteriologic studies. In tuberculosis the adhesions about the Fallopian tubes may be extensive, and yet the ostia of these tubes may not show the same tendency to undergo closure that is observed in other forms of salpingitis. As to the general symptoms, the great disproportion which exists between the marked cachexia and the insignificant amount of local disease is suggestive, while the injection of tuberculin causes a well-marked reaction. The pathologic process is aggravated by pregnancy, by coitus, and generally by debilitating conditions, especially such as occur in diabetes.

TREATMENT.—Tuberculosis of the uterus, whether of the corpus or of the cervix, when primary or when secondary to tuberculosis of the uterine appendages or of the peritonæum, should be treated by hysterectomy. Abdominal hysterectomy should be preferred as affording the opportunity of dealing more satisfactorily with the involved appendages and of inspecting the abdominal peritoneum. When tuberculosis of the uterus is secondary to tuberculosis in the lungs or other organs of the body, hysterectomy is still indicated, provided the tuberculous process elsewhere is not extensive and is not progressive, and provided also that the nutrition and vitality of the particular patient is sufficiently good to enable her to withstand a major operation. When tuberculosis of the uterus is secondary to or complicated by active tuberculosis in other organs of the body, or when the vitality of the patient is too greatly reduced to render a major operation advisable, treatment addressed to the cure or amelioration of the complicating conditions should first be instituted. Admission should be sought in a well-equipped sanitarium for the treatment of tuberculosis; or, if this is not available, the influence of rest, forced feeding, life in the open air, and tonic medication should be advised. During the continuance of such general treatment, should the discharges from the uterus be annoying or offensive, bland aseptic or mild antiseptic vaginal douches should be employed. In cases in which local discharge, whether of blood or of pus, is a marked feature, and in which a radical operation is contraindicated, curettage, with local applications of silver nitrate, iodoform, etc., may occasionally be indicated.

The treatment of tuberculosis of the vagina depends upon the character of the lesions, upon whether they be primary or secondary, and upon the complications in the particular case. Isolated lesions, when not too exten-

sive, should be treated by excision and suture. When this is not feasible, owing to the extent of the lesion or to too great involvement of the recto-vaginal and vesico-vaginal septa, the condition may best be treated by curettage, followed by the application of silver nitrate, iodoform, or other topical applications used in tuberculous lesions of mucous membranes in other portions of the body. In complicated cases in which the involvement of the vagina is but a minor part of a more general condition, local measures should be restricted to those which promote the comfort of the patient by the removal of discharges and the relief of pain.

Tuberculosis of the vulva should be treated by excision, when the lesions are not extensive. In cases in which the tissues are involved to a marked degree, Finsen-light treatment should be employed, this having given excellent results in lupus of other portions of the body.

The importance of general treatment, both in connection with local treatment addressed to the generative organs and as supplementary to local treatment whether topical or operative, cannot be too strongly insisted upon. It would be better if all cases supposed to be cured of local tuberculosis were treated by the methods which are employed for building up the system and which are considered necessary in the treatment of incipient tuberculosis.

The prognosis of tuberculous cases should almost never be hopeless. Not infrequently the most unpromising cases do well, and sometimes make good recoveries.

Charles P. Noble.

UVA URSI. See *Bearberry.*

UVULA AND SOFT PALATE.—ANATOMY.—The soft palate, or velum pendulum palati, is, as its name implies, a movable curtain or fold formed by a duplication of the mucous membrane which covers the hard palate and is continued backward from it. It contains muscular fibres, an aponeurosis, vessels, nerves, and mucous glands, and forms a valve, more or less complete, between the mouth and the pharynx. Its inferior border is free and pendulous, and is prolonged in the middle into a small conical process, *the uvula.* At each side it presents two curved folds known as the arches or pillars of the soft palate, and which, starting from above at a short distance outside the median line, extend downward and outward, diverging in their course to form the triangular space in which lies the tonsil. These folds are called respectively *the anterior and the posterior pillars of the palate.* The anterior descends to the side of the tongue, while the posterior runs downward and backward into the pharynx. The space which is situated between the anterior arches of the palate, and which constitutes the passage-way from the mouth to the pharynx, is called *the isthmus of the fauces.* The mucous membrane covering the greater part of the velum, as well as its free margin, is covered with pavement epithelium. At the upper part, however, and near the orifice of the Eustachian tube, ciliated and columnar epithelium is found. The epithelium of the gland ducts is also, in many instances, of this character. At birth the whole posterior surface of the velum is lined with ciliated epithelium, which later becomes squamous. The soft palate is acted upon by five pairs of muscles, two superior, two inferior, and one intermediate.

The superior muscles are the tensor palati and the levator palati, the two inferior are the palatoglossus and the palatopharyngeus, and the intermediate is the azygos uvulæ.

The tensor palati, or circumflexus, arises from the anterior aspect of the cartilaginous portion of the Eustachian tube, from the navicular fossa at the root of the internal pterygoid plate, from the spine of the sphenoid and the edge of the tympanic plate of the temporal bone; it descends vertically between the internal pterygoid plate and the inner surface of the internal pterygoid muscle, and terminates in a tendon which winds around the hamular process, being retained in this situation by some of the fibres of origin of the internal pterygoid

muscle, and lubricated by a bursa; it extends horizontally inward, and terminates in the anterior part of the aponeurosis of the soft palate and the under surface of the palate bone.

The levator palati muscle arises from the under surface of the apex of the petrous portion of the temporal bone, in front of the orifice of the carotid canal, and from the adjacent cartilaginous parts of the Eustachian tube. It passes downward and forward, approaching the median line, and is expanded upon the posterior surface of the soft palate as far as the median line, where its fibres blend with those of the opposite side. Superiorly, it is placed above the concave margin of the superior constrictor.

The palatoglossus muscle (constrictor isthmi faucium) is a fasciculus, narrower at the middle, which forms, with the mucous membrane covering it, the anterior pillar of the soft palate. It arises from the anterior surface of the soft palate, on each side of its uvula, where its fibres are continuous with those of its fellow of the opposite side, and, passing forward and outward in front of the tonsil, is inserted into the side and dorsum of the tongue.

The palatopharyngeus muscle, occupying the posterior pillar of the palate and forming, with the palatoglossus, the triangular space in which lies the tonsil, arises in the soft palate by fibres connected with those of the opposite side, and passing partly above and partly below those of the levator palati and azygos muscles. As the muscle descends it becomes greatly expanded, and its fibres are found extending from the posterior corner of the thyroid cartilage backward to the middle line of the pharynx, some of the fibres decussating posteriorly with those of the opposite side.

The azygos uvulæ muscle (so called from having been supposed to be a single muscle) consists in reality of two fasciculi; these arise from the posterior nasal spine of the palate bone and from the tendinous structure of the soft palate, and descend to be inserted into the uvula. The fasciculi are separated by a slight interval above and unite as they descend.

DISEASES.—The diseases of the soft palate and uvula may be classified into two groups, namely, general and local. In the first division may be grouped such as are symptomatic, and merely the local manifestation of a general condition, such as measles, scarlet fever, diphtheria, syphilis, tuberculosis, and lupus. Although the local lesion in any of the above affections cannot compare in importance with the general disease, there may arise certain conditions under which the throat affection may become of decided importance, as will be seen later on in the study of chronic inflammation, diphtheria, and syphilis of the parts. Local affections of the soft palate include the various inflammations which may attack it, such as simple hyperæmia, acute, subacute, and chronic congestion, œdema, and phlegmon, as well as general relaxation, dilatation of the superficial blood-vessels, paresis, new growths, and congenital malformation.

Inflammation.—Acute catarrhal inflammation of the uvula and soft palate presents the following symptoms: The uvula is reddened, swollen, and somewhat sensitive, the sensitiveness increasing at each effort of deglutition, and the patient experiencing a sharp pain, as from the presence of a foreign body in the throat. If the inflammation be severe, œdema of the submucous connective tissue and of the muscular tissue beneath may occur, giving rise to an acute prolapsus of the uvula, and attended with much irritation and discomfort. These anatomical changes are usually temporary, and disappear with the subsidence of the attack. Follicular and herpetic inflammations of the uvula are usually associated with the same condition in the pharynx, and therefore show no features which are distinctive.

Phlegmonous uvulitis is characterized by the greater intensity of the accompanying inflammation. The uvula is very much swollen and reddened, and the pain is excessive. The sensation is as of a heavy, voluminous body in the mouth, which in the act of deglutition gives