ing a neurologic examination as a routine on the part of the family physician or general practitioner who is frequently in the best position to detect syphilis of the nervous system in its incipiency. In the early cases a favorable prognosis may be given if persistent and intensive treatment is instituted. In the late cases so frequently the most we can do is to check the process and make the patient a bit more comfortable.

I would like to emphasize the importance of spinal puncture with examination of the fluid in all nervous cases. A spinal puncture is easily done and practically without harm to the patient. Another point I think worth noting in this series of one hundred cases is that 37 per cent had a negative blood Wassermann with the spinal fluid showing positive findings of the triad, increased cell count (considering a count of over ten lymphocytes per cubic millimeter, using a Fuchs-Rosenthal counting chamber, as pathologic fluid), increased globulin and positive Wassermann.

As to the importance of syphilis as an etiologic factor or merely an associated factor in these cases, you may draw your own conclusions, but when it comes to diagnosis of diseases of the nervous system in particular, I think one does well to consider the aphorism or maxim correctly accredited to Sir William Osler: "Know syphilis in all its manifestations and relations and all other things clinical will be added unto you."

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SYPHILIS OF THE MUCOUS MEMBRANES

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INTRODUCTION

Known to the early syphilographers and described with a fair degree of accuracy by them, the lesions of the mucous membranes of the various openings of the body, mouth, nostrils, vagina and anus, constitute, next to the lesions of the skin, the most striking outward manifestation of syphilis.

Such lesions are usually termed syphilides of the mucous membrane or mucous syphilides, but as the term syphilide is used by many writers to designate the skin manifestations of syphilis, as well as those of the mucous membranes, it seems most desirable to have a name which applies alone to the lesions of the latter. The term syphilomycoderm (syphilis, syphilis; mycoserum, mucous membrane; mucus, skin) is therefore proposed.

These lesions are very similar to the syphilodermata and differ from them only as the physical and anatomical conditions differ, although not all the varieties observed on the skin are found on the mucous membranes.

As with the syphilodermata, so with the syphilomycodermata, scarcely any two syphilographers agree concerning their classification. However, the following seems to me to cover the principal varieties of these lesions:

SYPHILOMYCODERMATA

I. Macular
   (a) Erythematous
   (b) Erosive

II. Papular
   (a) Erosive
   (b) Ulcerative
   (c) Vegetative
   (d) Squamous

III. Gummatous

IV. Leukoplakia

PATHOLOGY

The gross pathological appearance of the syphilomycodermata constitutes one of the most important symptoms of the disease and will therefore be described for each type of lesion in the section on Clinical History.

Histologically there is seen a more or less marked reaction of the tissues to the invading organisms. This consists of an infiltration of cellular elements, swelling of the endothelium of the blood vessels, with sometimes obliteration of the lumen, proliferation of the fixed cells and more or less thickening and destruction of the epithelial cells.

CLINICAL HISTORY

Macular Syphilomycoderm.—The erythematous macular syphilomycoderm occurs early in the course of the disease,
usually with the first cutaneous lesions, although it may be the first manifestation of syphilis following the chancre, and often passes unnoticed by the patient.

This lesion is most frequently located upon the fauces, the Schneiderian membrane and genital organs. The tongue, inner surfaces of the cheeks and larynx also sometimes are affected while it sometimes occurs in the vagina and on the cervix. The erythema may occur in spots or patches of varying size and shape similar to the roseolar macular syphilderm, or, as is usually the case, it is diffuse, presenting a hyperemia of dark-red color with sharply defined outline. It may be dry or it may be covered by a moist secretion. Usually there is no swelling, but when the Schneiderian membrane, tonsils and vulva are affected there may be considerable enlargement. This lesion may disappear very suddenly, but recurrences are often observed. Usually, however, after a short time the affected area assumes a milky hue and the superficial layers become detached, forming erosions.

The erosive macular syphilderm is found most frequently in the mouth, on the lips, tonsils, tongue and cheeks, on the vulva and on the glans and prepuce. It is also noted in the larynx and on the Schneiderian membrane. There are usually multiple lesions, consisting of small rounded or oval spots of a reddish color. denuded of the superficial layers and secreting a thin fluid in which are found many spirochetes. This type of lesion is very amenable to treatment, disappearing rapidly under the influence of specific. It is also rather prone to recur.

The pigmented variety of the macular syphilderm is a very rare condition and is most frequently observed in the lips, inner surfaces of cheeks, vulva, glans and prepuce. It consists of small dark-brownish spots from 1 to 3 or 4 mm. in diameter and not raised above the surrounding surface. Like the pigmented syphilderm it is usually most resistant to treatment. Ordinarily it occurs about the second or third year of the disease, but may develop much later.

Papular Syphilomycoderm.—This variety of syphilitic lesion corresponds quite closely in many respects to its homologue of the skin.

The erosive form of the papular syphilderm is usually an early manifestation, appearing during the first year of the disease, but may be observed later. It is found most frequently in the mouth, on the external genital organs of the female and around the anus. The Schneiderian membrane and the larynx are also sometimes affected, while this lesion is also occasionally observed in the vagina and on the cervix uteri. It is the most common of all the syphildermatata and the one most frequently designated mucous patch.

It usually begins as a round red spot on the mucous membrane. It may be single but more frequently is multiple. It is slightly elevated above the surrounding membrane, the surface is denuded of epithelium, as in the erosive macular lesion, and is covered by a moist secretion containing many spirochetes. This lesion varies in size from a millimeter to 1 or 2 cm. in diameter and several papules may become confluent. At first reddish in color, it may deepen almost to a purple, or it may become lighter in shade, even assuming a grayish or whitish color. Not infrequently the center of the lesion may be of a light color, while the periphery remains a dark red. The shape depends somewhat upon the location, but generally is circular or nearly so.

The ulcerative papular lesion of the mucous membrane usually follows the last described lesion and generally is produced by such untoward circumstances as uncleanliness, the use of tobacco, the irritation of a decayed or jagged tooth, etc. It is essentially a papule with an ulcerating surface. The ulceration may be superficial or deep, the former being little more than an erosion. The deep ulcer presents a raised, sharply-cut edge with an indurated dark-red or yellow base. Occasionally the lesion is covered by an exudation which resembles the false membrane of diphtheria. Therefore, the term diphtheroid is sometimes used.

Sometimes, especially upon the tongue and lips, deep ulcerating cracks or fissures may develop. When upon the lips considerable deformity may result, due to the
formation of crusts by the secretions and hemorrhage from the lesion. Upon the tongue the fissures may be parallel to the long axis of the organ or star-shaped. Permanent scars may be left upon healing. Multiple lesions are usually present and they vary greatly in size and shape.

The vegetative or hypertrophic papular syphilomycoderm is less frequently observed than the ulcerative types. It is, however, a later stage of the erosive papular lesion and is practically only found where cleanliness is not practiced. The most frequent location in which this condition is observed is around the anus and vulva; less frequently it is found in the mouth, especially on the under surface of the tongue, and occasionally in the larynx. It is also sometimes observed on the cervix uteri. It appears as a roughened, warty mass and when situated about the anus or vulva usually involves the surrounding skin as well as the mucous membrane. It varies in size from two or three millimeters to several centimeters and may be elevated as much as one centimeter or more above the surrounding surface. When occurring on the under surface of the tongue the vegetating syphilomycoderm rarely is elevated more than 1 or 2 mm., and instead of the usual reddish color of this lesion in other localities a dull gray or whitish color is observed.

The surface of this lesion may be dry or ulcerative. If the latter condition is present, there is usually a more or less profuse secretion which contains many spirochetes and may have an extremely foul odor.

The squamous papular syphilomycoderm is a comparatively rare condition and consists of a papular lesion on the mucous membrane, which, instead of becoming eroded or ulcerated, is dry, smooth and shiny, while desquamation of the superficial layers of the epithelium usually occurs. It is generally found during the first two years of the disease, but may appear much later and is most frequently noted in the mouth.

Gummata of the mucus membranes are very prone to be attacked by gummatus formations and, as with the gummata of the skin, usually occur late in the course of the disease, but may develop early. Gummatus syphilomycodermata are found on all of the mucous surfaces and present more or less varying pictures, depending upon their location. Gummata of the mucous membranes of the mouth may occur upon the tongue, lips, cheeks, tonsils or palate. They vary in size from 1 mm. to 1 or 2 cm. in diameter and may be single or multiple, circumscribed or confluent. When situated on the tongue this type of lesion is usually found on the dorsum near the tip or edges. Multiple lesions are generally observed. The mucous membrane is at first of natural color, but soon becomes redder and smoother, and usually in a few weeks the lesions soften and ulceration takes place, which may be followed by great loss of tissue. On the palate the gumma is comparatively frequent and when present projects as a flattened tumor above the surface. Gummata of the lips and mucous membrane of the cheeks are exceedingly rare.

Gummata of the larynx are not infrequently observed, but are usually seen after ulceration takes place.

Ulcerating gummata are not rare on the Schneiderian membrane.

Gummata of the mucous membranes of the female genital organs are noted rather rarely, and more often seen on the vulva than in the vagina in which latter location they are exceedingly rare. While generally multiple and of small size, they may be single and rather large. Ulceration usually is delayed, but when started develops with great rapidity.

Gummatus lesions of the mucous membrane of the penis are seen not infrequently and are most often observed from the fourth to the tenth or fourteenth year. This type of lesion is the so-called chancre redux, and the most common location is at the balano-preputial fold or at the urethral meatus. Ulceration, either superficial or deep, may occur. Gummata of these regions are important, especially on account of the differential diagnosis from chancre.

Leukoplakia is a condition of more or less extensive hyperkeratosis of the mucous membrane which, although not al-
ways of syphilitic origin, is found in syphilitic individuals in the majority of instances.

The most frequent location of this lesion is the dorsum of the tongue, although other portions of this organ may be involved as well as the inner aspects of the cheeks, lips, gums and rarely the vulva and glans penis.

It begins as a small reddish or slightly bluish patch which may only be recognized on account of an increased sensitiveness to hot or acid foods. In the course of a few weeks or months it develops into a round, oval or irregular patch of a milky or bluish-white color. Instead of a well-defined area the condition may consist of one or several lines of varying length or several small dots scattered or grouped, which may eventually spread and coalesce, forming quite extensive areas. As the lesion progresses it becomes hard, thick and of a dead white or dirty grayish color and usually is the seat of more or less pain.

In the pathogenesis of leukoplakia it would seem that syphilis plays only the role of a predisposing factor and should, therefore, not be considered as belonging strictly to the syphilomyocodermata. It is probable, however, that the condition not infrequently develops on the site of some other type of syphilitic lesion of the mucous membrane, and it is possible that in some cases a mercurial stomatitis is partially responsible for the condition. One of the striking features of leukoplakia is the frequency with which it is followed by epitheliomatous and for this reason it becomes of the utmost importance.

Erosion and ulceration of the patches of leukoplakia is not an infrequent occurrence and fissures may develop with or without the last named condition.

DIAGNOSIS

The diagnosis of the syphilomyocodermata, when the history is negative and other lesions of syphilis are absent, may become most difficult and recourse to laboratory procedures must be had.

The erythematous macular lesion of the mucous membrane of the mouth and throat usually occurs very early in the course of the disease, and when it is the only lesion present and no history of chancre is given, may readily be mistaken for a simple catarrhal angina and diagnosis without the aid of the laboratory be impossible.

The erosive macular syphilomyocoderm may be mistaken for simple erosion of the mucous membrane, and the diagnosis of this lesion as well as the foregoing in the absence of history of chancre or other syphilitic lesions may have to rest on laboratory procedure. Spirochaetae pallida are usually abundant, but must be differentiated from the spirochaetae microdentium.

The diagnosis of the pigmentedary syphilomyocoderm must be made on the history or other manifestations of syphilis, including the Wassermann.

The erosive papular syphilomyocoderm must be differentiated from simple erosions and when occurring in the mouth from "aphthous sores," from herpes of the mouth and from mercurial ulceration.

Aphthous sores are usually more acute and more sensitive than the syphilitic lesions and are, as a rule, associated with attacks of indigestion.

In herpes of the mouth the individual lesions are, usually, smaller than syphilitic lesions and more frequently occur in groups.

The differentiation of mercurial ulcers from the ulcerative papular syphilomyocoderm may be most difficult. However, the mercurial lesion rarely is found on the tongue or fauces, which are frequent sites of the syphilitic lesion. The mercurial ulcer is found very often on the cheeks or gum behind the last molar tooth and on the gum around the upper or lower central incisors. These lesions are also more sensitive than the syphilitic lesions, and are usually accompanied by other signs of salivation.

Of course, the finding of the spirochaetae pallidum will differentiate the syphilomyocoderm from all similar lesions, but if the patient has been under mercurial treatment the organisms in all probability will not be found. In such a case it will be necessary to discontinue the mercury, when, if the condition be due to the drug, the lesions will promptly heal, and if they are syphilitic they will not improve.

The ulcerating papular syphilomyocoderm is, as a rule, a further development
of the erosive lesion and the diagnosis will depend upon the same factors. Sometimes an exudation is seen on this type of lesion which markedly resembles the false membrane of diphtheria. The differential diagnosis will depend upon the more frequent and higher fever in diphtheria and the finding of the causative organism of diphtheria or syphilis.

The vegetating or hypertrophic lesion of the mucous membrane is scarcely to be mistaken for any other lesion, particularly if other signs of syphilis are looked for, as they are usually present.

The gummatous syphilomycoderm may present similar difficulties of diagnosis as gummatous skin lesions. Thus in its early stage gumma of the mucous membrane may be mistaken for lipoma or fibroid, while the ulcerating gumma of the mucous membrane must be differentiated from chancre, chancroid and epithelioma.

Lipoma is more flattened, less globular, of softer consistency and is less compressible than gumma.

Fibroid is usually more or less pedunculated and the mucous membrane over it is normal in color, while gummata are sessile and are covered by a dull reddish mucous membrane.

Gummata are to be differentiated from chancre by the history, that is, with gummata, a history of syphilis, and with chancre a history of exposure, and by the typical adenitis seen with chancre and almost always absent with gummata. Spirochetes may be found in both conditions, although more abundantly in chancre. The Wassermann test may be positive or negative in either.

Chancroid is to be distinguished from ulcerating gumma by the history, the abundant purulent discharge, the adenitis and the finding of the bacillus of Ducrey.

Epithelioma usually presents a single lesion, occurs, as a rule, later in life than syphilitic lesions, has an infiltrated, everted border, is slower of progress and is accompanied by glandular enlargements and more or less cachexia. The floor of an ulcerating epithelioma is covered by a foul secretion and bleeds very easily. A section of the growth, however, will at once settle the diagnosis.

Leukoplakia is such a characteristic lesion that it could scarcely be mistaken for any other condition. Psoriasis, lupus erythematosus and lichen planus of the mucous membranes might possibly be confused with leukoplakia, but the history and persistent course of leukoplakia and the presence of the other diseases mentioned on the cutaneous surface, should serve to differentiate these conditions.

PROGNOSIS

As with the syphilodermata, so with the syphilomycodermata, it may be said that the prognosis of their cure is good, and especially is this so with the macular and papular lesions, with the exception of the pigmented macular type which is quite resistant. The papular lesions of the mouth, however, may be aggravated and rendered more refractory by the use of tobacco.

Gummatus syphilomycodermata, as a rule, readily yield to specific treatment, although if left untreated, may affect the deeper structures and cause great loss of tissue with marked deformity. Leukoplakia, even if of syphilitic origin, may present great difficulty of cure.

TREATMENT

The lesions of the mucous membranes as a rule require little or no local treatment beyond that of strict cleanliness. When occurring in the mouth the use of mouth washes and gargles such as potassium chlorate and tincture of myrrh several times daily is to be recommended. Rough places on the teeth should be removed, and, as stated above, the use of tobacco should be curtailed as much as possible. Very hot foods or those highly seasoned should be avoided, as in some cases they irritate and aggravate the condition. Severe lesions may be touched with a silver nitrate stick or a 5 to 10 per cent solution every three or four days.