LESSON IV.

Syphilis by Hereditary Transmission—Differences of Opinion in Regard to the Transmission of Syphilis through the Spermatazoids—Evidence Furnished by the Cell Theory of Syphilis showing the Improbability of Infection in this Manner—The Onus of Hereditary Transmission Thrown Upon the Mother—The Previous Acquirement of Syphilis by the Mother Necessary to the Infection of the Fœtus or an Embryo—Syphilis Transmitted only during the Active Period of the Disease; from One to Three Years—Reasons for this Statement—Cases Reported Claiming a Longer Period not well Substantiated—Without a Contagium there is no Syphilis—Errors Due to Acceptance of Imperfect Evidence—Illustrative Case.

SYPHILIS BY HEREDITARY TRANSMISSION.

Heretofore, in considering the modes of transmission of syphilis, we have accepted the probable fact that this disease is communicated by contact of a diseased with a healthy human germinal cell. We have now to consider how diseased cells in the adult, male or female, suffering with syphilis, may be brought in contact with those of the embryo, or of the fœtal organism. It is claimed that the fœtus, through the natural processes of growth and development, may be built up from a syphilitic seminal animalculæ (*spermatozoids*) furnished by the male, in conjunction with an ovum furnished by a healthy, or even by a syphilitic, female, and may thus come to comparative maturity. Much clinical material has been adduced to prove this. On the other hand it is claimed, with equal proof of a similar character, that this is *never* the case, but that the syphilitic influence is *always* furnished by the *female;* presumedly communicated to the embryo or fœtus through contact with the nutritive elements furnished by a mother in whose organism the degraded cells or disease germs of syphilis are present.

Like most important questions in which syphilis is involved, a solution of the foregoing, based on clinical evidence alone, is most difficult. The best proof of this

statement is, that, on either side of all such questions, the most experienced and competent observers are ranged in nearly equal force. To constitute *Hereditary* syphilis either the embryo or the fœtus must be infected. All infection during or subsequent to birth must be classed with one or other of the modes of transmission of syphilis previously considered.

If we accept the syphilitic influence to be, as previously claimed, a degraded formative cell, we may also accept, as a legitimate sequence, that, through this degradation, there is a loss of formative power—an inability to develop into any useful tissue.

The contagion of syphilis, as claimed, is always effected by contact of a *degraded* with a *healthy* germinal cell. In a strict sense, therefore, it is always localized. Cells thus degraded are practically emasculated, their capacity for usefulness is lost. Of necessity, then, growth of living tissue occurring, it must take place through the normal cell elements, that is, through those which have escaped this degradation. It is thus plain that only a portion of the germinal material of a living organism can be affected by syphilis. Sufficient germinal material to carry on the processes of life and growth must escape, or growth would be at once arrested and life would cease. The possibility of involving in the syphilitic dyscrasia so infinitesimal a fraction of a spermatic organism as would still enable it, in conjunction with the ovum, to play an efficient part in the growth and development of the human embryo, is scarcely conceivable. Especially difficult shall we find it to accept such a view when we consider that, once in connection with the ovum the syphilitic influence would be rapidly imparted to the germinal elements furnished by *it*. We may, then, consistently, throw the great improbability of continued growth (or indeed of any growth), under such an unfavorable influence, into the scale with the clinical claims of those who *deny the possibility* of the embryo or fœtus being infected with syphilis by the *spermatozoids*. With this view of the subject, the onus of hereditary transmission of syphilis is necessarily thrown upon the MOTHER, under all, even under appar-

ently contradictory clinical circumstances. Hence, when an embryo or fœtus is the subject of syphilitic infection, we may conclude that it is the result of *contact* of *its* normal formative or germinal cells, with cells degraded through the syphilitic influence, furnished by the nutritive fluids of *the mother;* either directly through the circulation, or through degraded cells from her organism, gaining access to that of the embryo or fœtus by their amœboid power.

Hence, to make the syphilitic infection of an embryo or a fœtus possible, the organism of the mother must *first* be infected with syphilis. The previous acquirement of syphilis *by the mother* from the father, or through the secretion of a syphilitic lesion, or from the blood of one suffering from active syphilis (by direct or mediate contagion), is necessary to the syphilitic infection of a fœtus or an embryo.

It is only during the active stages of syphilis (primary and secondary periods) that the contagious element of the different lesions of syphilis and of the blood is present. Therefore hereditary transmission of this disease is only possible during this time (*usually* from one to three years). The sequelæ of syphilis (tertiary and quaternary periods) contain no *discovered* elements of contagion. The most careful microscopical examinations have failed to demonstrate in the products of *Tertiary Syphilis* (various forms of *gummata*, including eruptions) anything besides the débris of normal germinal elements. Repeated inoculations of these products have failed to disclose any contagious principle. *Without contagium there is no syphilis.* Hence we may reasonably conclude that hereditary syphilis is only acquired during the active periods of the disease, and that in order to effect syphilitic contamination of the embryo or fœtus the female organism must first be infected.

With this view of the maternal influence in syphilitic infection of the fœtus or embryo, cases reported, claiming such infection to have occurred through the sole agency of the father suffering with syphilis (the mother, up to this time, free from the disease), must be classed either among those instances where the characteristic

features of the disease are absent, or where they are so imperfectly developed as to have escaped detection.

The difficulty of instituting a thorough examination, under circumstances where it is necessary to avoid suspicion of its object, the want of tact, care, and experience in detecting obscure evidences of this disease, have, without doubt, too often led to the acceptance of syphilis acquired through the paternal influence, where, under other conditions and in other hands, infection of the mother would have been recognized.

The following case will serve to indicate some of the various ways in which syphilis may be overlooked, and further, to show important variations in time and manner of development of syphilis from a similar source. Some three months since, Dr. W., a naval surgeon, consulted me in regard to a small nodule on the *frenum preputialis.* An abrasion was discovered, after a suspicious exposure, some four weeks previous. This healed at once, as if simple, and nothing further was noticed, until the nodule, about the size of a kernel of pearl-barley, was observed. Its surface was abraded, probably during a recent connection. Its scanty secretion was found under the microscope to consist chiefly of laminated epithelial scales. On account of the obesity of the patient, a satisfactory examination of the inguinal glands was impracticable. No enlargement could be felt. I advised excision of the neoplasm. This was done at once, and healing by first intention was complete in forty-eight hours.

A few days ago (December 15th) the doctor called to say that the operation had evidently been efficacious in saving him from a general syphilitic infection; that he had positive proof of having, himself, communicated syphilis to a young lady the night previous to the excision. In her case an initial lesion followed, in due time after the connection, accompanied by inguinal gland enlargement and succeeded by general gland hyperplasia. She now had, in addition, a characteristic papular syphilide, and yet he claimed to be absolutely free from the least evidence of syphilis.

A cursory examination appeared to confirm the doc-

tor's statement. This, however, appeared so improbable, that I at once instituted a more thorough examination, which resulted in the discovery, under a deep layer of adipose, of small but characteristic gland enlargements in connection with the initial lesion. The cicatrix on its former site was slightly indurated. Glands at a distance—epitrochlean and post-cervical regions—perceptibly enlarged. Slight but positive congestion of the fauces, and a narrow but characteristic *mucous patch* hidden behind the anterior pillar on either side. These proofs of syphilitic infection had escaped the anxious search and skill of the patient, also of a professional associate, who was a competent and experienced general surgeon.

Through evidence furnished by clinical cases, it has been claimed that syphilis once acquired is never fully eliminated from the system, but that it exists as a possible infecting agent, after the stages which furnish *known* contagious elements are past. During more than twenty years of observation and especial interest in regard to this point I had been unable to find a single undoubted example, where a person in the known *Tertiary* period of syphilis (and so demonstrated by the absence of the glandular enlargements characteristic of the active stages of the disease) had been the proven carrier of syphilis to a healthy person. I came to believe fully, in regard to persons who had passed successfully through the so-called *primary* and *secondary* periods, and so proven by complete absence of *primary* and *secondary hyperplasias* that treatment was no longer necessary, that such persons might, if desirable, even be permitted to marry, with the assurance that, through them, transmission of syphilis to wife or child was impossible. This doctrine I had taught and practised for a very long period, when a case came under my observation which, but for a mere chance, had unsettled me on this vital point forever. The important lesson which it enforced, namely, *to distrust the value of purely clinical evidence*, may be profitably transmitted by the brief extract from my note-book which follows:

Mr. Q., a young lawyer, twenty-five years of age, had

acquired a well-marked initial lesion of syphilis on the *glans penis*. His gland enlargements in the epitrochlean, cervical, and post-cervical regions were characteristic—his roseola escaped observation, but a classical papular syphilide appeared about the fourth month, and continued for several weeks. Ulcerations of the tonsils and *mucous patches* on the soft palate and inner surface of the cheeks followed, but yielded satisfactorily to treatment.

The gentle but persistent use of mercury internally and by inunction had been pursued from the first and through a period of twelve months, occasionally combined with the iodide of potassium. At this time all glandular enlargements had disappeared, except a small one, the size of a pea, in the right *post-cervical* region. Treatment suspended for three months, when a thin diphtheric patch appeared on the right side of the tongue, with slight induration.* Treatment resumed, mercury, with iodide of potash. Patch on the tongue faded slowly out in about a month, but was replaced by another, on the opposite side, which continued about the same time, *cervical gland* not perceptibly changed. A series of mercurial baths, and a course of Zittman's decoction, covering nearly three months longer: gland now scarcely felt. Patient very anxious to marry, but was advised to wait a full year. The next six months passed without any new development. *Gland* very small, but still recognizable, when the patient, now in good general health, married on his own responsibility.

One year after marriage the wife gave birth to a fine, healthy-looking boy. During the fifth month of lactation, the wife had scrofulous abscess of the neck (inherited tendency), which alarmed the husband (fearing syphilis) exceedingly. She recovered under simple treatment, and relief from nursing. Child healthy up

* I have known patches similar in appearance to result, in certain cases, *from the use of the iodide of potassium*, to pass off when the remedy was discontinued, and again to return when it was resumed. I have also seen patches of the same appearance in the mouths of persons habituated to the use of tobacco, where no history of syphilis could be ascertained.

to third year, when it died from tubercular meningitis, following scarlet fever. No salient evidences of syphilitic taint. Fear that his old trouble had been in some way connected with his child's death made the husband very unhappy, and he frequently expressed the fear that he had contaminated or might yet contaminate his wife, to whom he was tenderly attached.

In November, 1870, Mr. Q. complained of some swelling and soreness over the right tibia. A gummy tumor was found presenting, the size of half a horse chestnut. The nature of it explained, he was put on a mild mercurial, with large doses of the iodide of potassium, which resulted in its entire disappearance within a month. Both husband and wife continued healthy up to October, 1871, when one morning he called, in great distress, to say that his wife had some sores in her mouth, resembling those of his early syphilitic trouble. I did not hesitate to assure him that this was simply impossible; that his disease, if any trace of it remained, was beyond the fear of contagion. The spotless character and chaste deportment of his wife made me sure there could be no other danger, and I comforted him accordingly.

What was my surprise, on seeing her, to find not only several characteristic mucous patches in her mouth, but, on further examination, to discover four or five mucous tubercles—one on the inner border of the thighs, and the others on the right labium. I was forced to acknowledge to the unhappy husband that he was right, and we could only conclude, contrary to all my assurance and belief, that his old taint had been the cause.

Here was a dilemma. I could not suspect the wife. I could not accept the contagion from a source which stultified all my conclusions, teaching, and experience. I was wretched. The husband was wretched, but resigned, desiring only, if the knowledge of it was not necessary to her recovery, that I should keep the secret from his wife. *She was serene.* After a few weeks' medication, and not unfrequent painful applications of caustic to the mucous tubercles, I thought she was *too*

serene. I asked and received permission from the husband to tell his wife what her trouble was, if I thought it best. My manner to her was changed; from being sympathetic and considerate, it became brusque and reserved. An explanation was finally demanded. I evaded the issue. After a little dexterous fencing, the source of her troubles was flatly claimed. Ignorance of my meaning was feigned.

I explained the only possible causes of her disease, and said she had been married too long to suspect her husband. She promptly replied that he was "as pure as the sun." I then told her if she would give me her confidence, I would protect her—if not, would lay the matter before her husband (who was not supposed to be aware of the nature of the disease). Then came tears — reproaches — and finally, in a tempest of womanly indignation, she bade me leave, *forever.* I left, disheartened and in disgrace; but, before I was well on my way downstairs, I was recalled, and amid tears and sobs she confessed. A yachting excursion; an unexpected night at sea; exposure with an old lover: and all this about three months before. A letter was subsequently received from him full of regret that he had discovered himself syphilitic, and inquiring if he had been so unfortunate as to have communicated the disease to her.

The subsequent progress of this instructive case was not peculiar. The lady made an apparently complete recovery in about a year. After another year she again became pregnant—was delivered of a healthy child, now living—but died of puerperal fever the third week after her confinement.

In carefully reviewing this history it will be observed that while it is seen to be no exception to the rule that *tertiary lesions* are not contagious, it will show how easily they may achieve the credit due to the *active* manifestations of syphilis.

LESSON V.

Early Differential Diagnosis—The Earliest Recognizable Evidence of Syphilis in Local Cell Accumulation, and Progressing until Characteristic Nutritive Disturbances Occur—Neither Inflammation nor Ulceration Essential Features in the Results of Syphilitic Inoculation—Lesions of whatever Kind may Receive a Syphilitic Inoculation and Heal as Quickly and Perfectly as if no such Inoculation had Occurred—Immediate Decision in such Cases impossible—Delay until the longest Interval of Known Latency between Exposure and Development of Syphilis has Occurred necessary to a Positive Opinion in Cases of Doubt—Induration of the Initial Lesion Non-inflammatory—Inflammatory Induration Yields to Local Treatment which renders Specific Induration more Permanent—Physical Characteristics of Specific Induration—Value of "Confrontation" in Cases of Doubt—Cases Illustrative of Danger of Mistaken Diagnosis.

EARLY DIFFERENTIAL DIAGNOSIS.

The characteristic, and only constant, feature of all lesions, during the active stages of syphilis, is shown by microscopic examination to consist in a localized cell accumulation.

Consideration of the nature and behavior of this material will afford intelligent aid, in a differential diagnosis, between the initial lesion of syphilis, in its early period, and solutions of continuity from other causes. As far as shown, syphilis is primarily a process of cell growth and accumulation, so rapid that it interferes with healthy *tissue* growth, by obstructing the processes of nutrition and development. Not of necessity interfering to the extent of causing death of tissue, but of impairing its vitality, and thus causing it to break down more rapidly under influences which favor solutions of continuity. Hence we have presenting, as *characteristic* initial lesions of syphilis, either a neoplasm, dense, insensitive, and covered with unbroken and apparently normal cuticle or mucous membrane, or, from the causes above mentioned, some one of the various characteristic *solutions of continuity* associated with the initial lesson of syphilis.

In addition to the foregoing *characteristic* lesions, we may also find early local disturbance, in various forms and from various causes, associated with the beginnings of syphilitic cell accumulation, but presenting no features *characteristic* of syphilitic inoculation.

The known fact, however, that syphilitic infection not unfrequently follows a wound of inoculation, which heals promptly, and with no subsequent solution of continuity, is sufficient to prove that *neither* INFLAMMATION *nor* ULCERATION *are essential features in the results of a syphilitic inoculation.*

Thus, wounds, abrasions, broken vesicles, pustules, or ulcers *may* receive a syphilitic inoculation, and progress or heal as if no such inoculation had taken place.

It is then evident that no *positive* differential diagnosis can be made *at once* between lesions which *will* be followed by syphilitic infection and those which *will not.* A positive decision cannot be rendered until after such *interval*, from latest exposure, as may be required to develop some characteristic cell accumulation, either on the site of the lesion or in the adjacent lymphatic channels and glands.

This *interval* is recognized by all authorities as a clinical fact, and is characterized as "*The Period of Incubation of Syphilis.*"

The term was invented in accordance with a belief (formerly prevalent) that the *virus* of syphilis was a mysterious impalpable influence. That this, having entered the system at a given point, instantly permeated the fluids and solids of the entire organism. It then accumulated by "a kind of germination" until the point of "*saturation*," or extreme limit of tolerance, was reached. This event was announced by a peculiar and characteristic action, at the point of entrance of the virus, which was termed the *Chancre.*

It is plain, however, that such a view of syphilitic infection can have no support, if we accept the view of a cell degradation, and a systematic syphilitic infection, in accordance with known histological, physiological, and pathological laws.

It is then to the local conditions, at the point of inocu-

lation, that we must look for the earliest evidences of syphilitic action. This is afforded, at first, through the microscope, by discovery of a densely packed *non-inflammatory* cell accumulation which steadily increases until it is appreciable to the ordinary touch. The same cell accumulation is also seen to occur in the lymphatic vessels connecting the initial lesion with the adjacent lymphatic glands. These vessels are not unfrequently found obstructed and indurated, and, like knotted cords, the size of a crow's quill or larger, often easily traceable to their gland termination. The associated blood-vessels are never narrowed or interrupted from this cause.*

The local induration of a suspected lesion, however, is not *positive* evidence of syphilitic action. Cell accumulation sufficient in degree to produce well-pronounced induration may result from *irritation* of a *simple* lesion. Thus, an herpetic vesicle, or pustule, even a simple abrasion, through friction from clothes, or from applications of caustics or astringents, may become indurated sufficiently to raise grave suspicions of syphilis.

Induration in such cases is always the result of *inflammatory* action.

The induration of *syphilis* is essentially *non-inflammatory*. The differential diagnosis is aided by means used to combat the inflammatory condition. Under the influence of rest and local sedatives the *incidental* induration is promptly dissipated; *in the initial lesion of syphilis* the induration is made more salient. Sometimes, though rarely, the induration is quite obscured by a slight localized serous effusion, which gives it a bluish appearance. This I have observed in several cases where the lesion was on a finger. The same condition quite frequently succeeds well-marked indurations near the *fossa glandis*, and is so persistent as to become a valuable diagnostic mark.

The induration may be said to be *characteristic* when

* The only recognizable cell accumulation in syphilis is confined to the lymphatic system. If, during the period of so-called incubation, the syphilitic influence has found access to the general circulation, no evidence of it has ever been discovered in the condition of blood-vessels, or of the blood, or in the conditions or sensations of the person so affected.

insensitive, dense, and resistant, like cartilage. If pressed between the thumb and finger it becomes exsanguinated, and like in appearance to the tarsal cartilage, when the eyelid is turned back.

Even this most positive evidence of syphilis cannot be accepted as conclusive. The induration of a commencing *epithelioma* simulates it very perfectly, and, if an open lesion, its secretion under the microscope presents appearances almost identical. In summing up the whole matter, we are forced to confess that a final decision in any given case is not warranted, until some other evidence is present besides the appearance and character of the *local* lesion.

In all cases, where possible, *the person from whom syphilis may have been acquired* should be carefully examined.

In making such examination, search not only for the initial lesion, but for each of the possible *secondary* manifestations. Even when such are found, it must be borne in mind that *a breach of surface on the person exposed* is essential to the acquirement of syphilis, and that this surface must be brought into CONTACT with the syphilitic secretion, either *directly* or *mediately*. So that while the presumptive evidence furnished by *confrontation* is often strong, it is not *necessarily* conclusive.

The following cases will serve to illustrate the importance of caution in arriving at conclusions in regard to the true nature of venereal lesions:

Case I. Mr. T., aged twenty-three, on the fourteenth day after his first and only connection, noticed a slight urethral discharge. Under the microscope this was found to be distinctly purulent. No pain on urination. Meatoscope showed the mucous lining of the urethra deeply congested for half an inch. Beyond this there was no purulent secretion; appearances normal. The difficulty was, evidently, not *gonorrhœal*. A *syphilitic inoculation* was suspected. Examination of the woman with whom he had connection *showed her to be passing through the active stages of syphilis*. No initial lesion was found; but the inguinal, epitrochlean, and cervical glands were characteristically enlarged. Several *mucous*

tubercles were discovered within the vulva; one in the *cervical sulcus*, and three on the *os tincæ*. Besides these there was a double row around the *anus*, eroded and secreting pus freely. In the presence of such evidences of syphilis, it seemed impossible that the young man could have escaped infection. The urethral discharge was probably caused by a syphilitic inoculation which had not yet produced a well-defined initial lesion. Inguinal glands of both sides slightly enlarged. Treatment for syphilis deferred (much against the patient's wish) until evidence of syphilis should become more positive. *The urethral discharge gradually declined and disappeared entirely in about a month.* Up to the present time (four years from date of exposure) patient has not had the slightest evidence of syphilitic trouble.

Case II. Mr. H., aged thirty, had a suspicious connection in May last. On the third day following he noticed several small pimples on his prepuce. Fearing venereal disease, he consulted his family physician, who at once pronounced the trouble a simple *herpes*. A mild lotion was recommended. Under its use all evidences of disease disappeared within a few days, and the patient was assured, in the most positive manner, that he was free from disease. June 10th, four weeks after the suspicious connection (and more than two after he had been pronounced free from disease), the patient was brought to me by his physician for an opinion in regard to a small, hard, eroded nodule on the former site of the *herpes*. Inguinal glands, on corresponding (right) side, characteristically enlarged. My belief that the nodule was an initial lesion of syphilis was strongly expressed, and the gentleman was put upon a mercurial course. A month later he called, presenting a well-marked roseola, with the usual secondary gland enlargements. His wife, who accompanied him, had an indurated initial lesion on the lower border of the meatus urinarius and well-marked inguinal enlargement.

Case III. Mr. W. V. No unusual trouble until two and one half months ago, when ten days after a suspicious connection he noticed a small sore on the right side of the penis. He consulted a surgeon, by whom

he was informed that he had a "*soft chancre;*" that he would quickly destroy it by application of nitric acid, and further, that *there need be no fear of subsequent trouble.* The cauterization was made, was repeated several times, at intervals of three or four days; healing finally taking place in about three weeks. Patient had connection with his wife the night previous to receiving the surgeon's opinion that he had a *chancroid;* no connection since.

This gentleman called upon me to ascertain the cause of a papulo-pustular eruption which was confined to the face and neck. I at once recognized it as syphilitic; examined the cicatrix of the so-called *chancroid,* and found it distinctly indurated. Gland enlargements of elbow and neck, all well pronounced and characteristic.

In answer to an anxious inquiry as to the possible infection of the wife, I was obliged to admit the possibility of such a calamity. He assured me that she had been, and was then, perfectly well in every respect—"*except that she had some little swellings in the right groin; not the least pain.*" An examination of the lady on the following day disclosed characteristic gland enlargements, not only in the groin, but in the arm and neck. No search was made for the initial lesion. She was put upon constitutional treatment for "*a form of leucocythemia,*" and remained in blissful ignorance as to the nature of her own and her husband's trouble.