

## LESSON III.

The Cell Accumulation of the Initial Lesion of Syphilis in Harmony with what is proved to occur in every Lesion during the Acute Stages of the Disease—Cell Proliferation, *in loco*, always Sufficient to Explain Satisfactorily the Cause and Condition of the Lesion—Gradual Progress of the Infected Cells through the Lymphatic System until the General Blood Current is Reached—Practical Denial of the Views of Instant Infection, with Corroborative Proofs—Incubation of Syphilis—Different Modes of Transference of Syphilis—Most frequent Locations of the Initial Lesion—Communication by Direct Contact through the Act of Kissing, through Surgical and Gynecological Operations, etc.—Communication of Syphilis through Mediate Contagion or through any Material which has been in Contact with the Secretion of any Lesion of Active Syphilis—Directions for the Prevention of such Accidents—Eight Cases Illustrative of this Mode of Acquiring Syphilis by Medical Men.

The significance of the induration in the initial lesion of syphilis as thus explained is most important, and will be found to be in harmony with and typical of each and every manifestation or lesion throughout the active or acute stages of the disease. The cell accumulation which has been demonstrated to constitute this induration has been found to occur in the lymphatic vessels in communication with it, not infrequently recognized, like knotted cords under the integument, running to the lymphatic glands into which they empty, which in turn become depots for the proliferative process, and enlarge in the manner shown in Case III. (see page 25), and are claimed and proven to be characteristic of the presence and advance of the syphilitic disease. The induration associated with the initial lesion of syphilis, then, is the result of a gradual invasion of the tissues, commencing at the point of inoculation or contact of the syphilitic principle, or so-called virus, with an open lesion of the integument, or mucous membrane. It is a most significant and important fact that, since the microscope has been applied to the investigation of syphilitic disease, no lesion or manifestation of it has failed to present evidences of cell proliferation, *in loco*, suf-

ficient in amount to explain, in a satisfactory way, the cause of the lesion. It has also in the same manner been demonstrated that this localized cell proliferation and accumulation occurs in a methodical way, progressing steadily from its point of beginning, or first contact with the syphilitic virus or principle, gradually invading the lymphatic vessels and glands, until it reaches the great lymph reservoir, the *receptaculum chyli*, through which it reaches the general blood-current by the subclavian veins.\* All this, it will at once be seen, is in direct opposition to the views formerly, and to a great extent still, held, viz., that the virus of syphilis enters the blood at the instant of inoculation, and that thus "the entire organism is affected at once."† Such a claim is purely theoretical and unsupported by a single scientific proof, while the evidences of a gradual infection, through the lymphatic system, are not alone met in microscopical examinations by distinguished scientists, but are confirmed by the clinical observations of every careful observer; each succeeding lesion or manifestation from the initiation to the termination of the disease adding corroborative proofs, not only by its physical characteristics, but by the date of its appearance.

## THE SO-CALLED INCUBATION OF SYPHILIS.

This is a term usually applied to the period which elapses from the date of inoculation to the appearance of the characteristic initial lesion, and may vary in different cases, according to different authorities, from one to seventy days, the usual time being from ten to twenty-five days. Strictly speaking, syphilis has no period of true incubation, inasmuch as the process of cell proliferation is undoubtedly established at the moment the virus (disease cell or germ) comes in contact with the germinal or white blood cell of the human organism.

\* See Otis on the Physiology and Pathology of Syphilis. G. P. Putnam's Sons. New York, 1881.

† Billroth, Surgical Pathology. Am. ed., p. 386.

The immediate effect of such contact seems to be a rapid increase in the process of proliferation of such of the normal white blood cells as have become contaminated or degraded by the influence of the disease germs (virus) of syphilis. Through accumulation of this degraded product, the tissue (including the vessels of nutrition) at the point of initiation of this process, becomes densely packed, forming a neoplasm of greater or less extent. The process of degradation or infection is confined to the immediate locality of the inoculation, until the degraded cells have gained access to the interior of a lymphatic vessel. Through this channel the diseased cells are carried to the nearest lymphatic gland (the *gland of connection*, as it may be termed), and here are arrested, by the peculiar conformation of the gland structure, for a longer or shorter period (usually about six weeks), during which time there is no further evidence of constitutional infection.

This period of *apparent rest* is usually termed the *second incubation* of syphilis.

NOTE.—It is probable that the interval between the date of inoculation and appreciable gland enlargement is dependent upon the facility or difficulty with which the diseased cells gain access to the lymphatic vessel connecting the point of inoculation with the adjacent gland. Hence, at points where the distribution of lymphatic vessels is most liberal and most superficial we should expect to find the *shortest interval* between inoculation and gland implication. This view is supported by the clinical fact that, in cases when the shortest interval occurs, the initial lesion (in the male) is located at the *frenum*, or the anterior-inferior surface of the *glans penis*. From this point, chiefly, the superficial lymphatic vessels radiate, and are (according to Balaieff) "most *superficial*, rising, in this especial locality, until they lie just *underneath the epithelium*" (see Otis on the Physiology, Pathology, and Treatment of Syphilis (Putnam Sons, 1880), pages 12 and 13, where it is shown that, by direct introduction of the syphilitic element into the *interior* of a lymphatic vessel, diseased action, in the gland of connection, is inaugurated at once).

#### MODES OF TRANSFERENCE OF SYPHILIS FROM THE DISEASED TO THE HEALTHY.

The modes of transference of syphilis from the diseased to the healthy are three:

(1) By DIRECT CONTACT of the diseased surface with

an abrasion, or other breach of tissue, on a healthy person.

(2) By MEDIATE CONTAGION.

(3) By HEREDITARY TRANSMISSION.

Communication of syphilis by DIRECT CONTACT (as under the circumstances peculiar to the venereal act) is the most frequent mode of the acquirement of syphilis. In the female, initial lesions from this source are most common in the vicinity of the *ostium vaginae*; especially so in the folds of mucous membrane about the *fourchette*; between the greater and lesser *labiae*; under the sheath of the *clitoris*; upon, and even within, the *meatus urinarius*. They are also found to occur, not unfrequently, about the *anus*; they are rarely found on the *os uteri*, and still more rarely on the *vaginal rugae*.

In the male, the most frequent sites are upon the *glans penis* and *prepuce*, occurring with especial frequency in the *sulci* by the side of the *frenum*, at the *meatus urinarius*, and in the *fossae glandis*, and occasionally on the integument of the *penis*.

In both sexes the initial lesion is sometimes found upon either *lip*, in the angles of the *mouth*, or even within it, and also near, or within, the *anus*; all as a result of direct contagion. Communication of syphilis by direct contact, through the act of *kissing*, is an accident of occasional occurrence. There is also a danger that it may be transferred, through the act of nursing, from syphilitic infants to healthy wet nurses, or from syphilitic nurses to healthy infants. Relations between nurses and children should never be entered into without a careful consideration of this fact. In these cases, the inoculating secretion may be furnished, either by an *Initial Lesion*, or by one of the common manifestations of active syphilis, known as the *Mucous Patch*.

Initial lesions are also found in various other localities, as solutions of continuity, *at any point*, may become the accidental recipients of the syphilitic *contagium*. Usually, they are rare in proportion to their distance from the genitalia. Surgeons, accoucheurs, and gynecologists are especially exposed to the peril of an innocent inoculation of syphilis by direct contact. Within the circle

of my city acquaintance, at the present time, are three medical gentlemen who acquired syphilis through an initial lesion on the right forefinger. In another case, a surgeon, also an acquaintance, received the syphilitic inoculation in the end of his right forefinger, through accidental puncture, by a spicula of bone, while amputating the leg of a syphilitic subject.

INOCULATION OF SYPHILIS THROUGH MEDIATE CONTAGION.—Cells diseased by the syphilitic influence (or what is usually termed the syphilitic *virus*) may cling to substances with which they are brought into contact. All degraded animal cells, or disease germs, have the power of maintaining their vitality for some time after removal from the organism in which they have been developed. (Beale.) Any material, therefore, which has been in contact with the secretions of syphilitic lesions, or the blood of a syphilitic, during the active stage of syphilis, may prove the medium of communication of syphilis to a healthy person, provided, only, that the substance so contaminated is brought into contact with a *lesion*, however slight, of the skin or mucous membrane.

The most common source of the *contagium*, in cases of MEDIATE CONTAGION, is the *Mucous Patch*, a constitutional syphilitic lesion, frequent upon the mucous membrane of the lips, mouth, and faucial region, in persons passing through the active stages of syphilis. The *saliva* is thus impregnated with the syphilitic disease germs, and, through it, a variety of domestic utensils have been the known medium of syphilitic inoculation, by contact with abrasions upon the lips of healthy persons, without regard to age or sex. In the same way, pipes passed from syphilitic mouths, cigars from syphilitic cigar-makers, canes, pencils, and even sticks of candy, contaminated by syphilitic saliva, have effected a syphilitic inoculation. Within the last eighteen months I have met with four cases where there was undoubted proof of the acquirement of syphilis through mediate contagion. One, of a young lady, with the initial lesion on the lower lip, acquired from her lover's kiss. The second, a physician, with the initial lesion

just within the angle (on the right side) of the mouth, from a syphilitic friend's pipe. The third, in the same locality, appearing, characteristically, about three weeks after a morning spent in a dentist's chair. The fourth, a worthy merchant, with his initial lesion (well marked) on his lower lip, with mucous patches in his mouth, and an accompanying syphilitic iritis. In this latter case the only clue to the mode of acquirement of syphilis was the habit of passing among numerous clerks and occasionally transferring a lead pencil from their desks to his mouth.

Well-marked constitutional syphilis, with complete absence of any genital lesion, was present in each case cited.

The foregoing typical cases, illustrative of the modes through which syphilis may be contracted by *Mediate Contagion* (with the exception of the last), were seen in consultation with physicians from neighboring States. Such accidents, however, are of more likely occurrence in great cities, where moral restraint is least stringent and opportunity for acquiring venereal diseases most favorable. It becomes necessary, therefore, in connection with cases of obscure disease, simulating syphilis, to make a searching scrutiny of all incidents, conditions, and exposures which may, in the light of possible accidents, point to opportunity of syphilitic infection through mediate contagion. The third case cited is of especial value, as conveying a lesson on the necessity of scrupulous care of instruments used in operations about the mouth.

So simple a procedure as the depression of a patient's tongue with a spatula, in examinations of the mouth and throat, may easily become the means of carrying the syphilitic disease germ to an abraded surface in a healthy person.

In all cases, therefore, where the same instruments are in use for different persons, after thorough cleansing, their passage *through the flame of an alcohol lamp* should be systematically practised after every operation. The same procedure is equally indicated in regard to instruments used upon other mucous membranes,

as those lining the urethra, the bladder, the rectum, the eye. It is also essential in all instruments used in cutting operations at any point. Not the least important among the modes of conveying syphilis by mediate contagion is that by *vaccination*. Numerous well-authenticated cases of this disaster may be found recorded in any modern systematic work on syphilis. Inoculation of syphilis by vaccination may be effected either by an impure virus or an unclean knife. Use of the bovine virus, by means of a clean instrument, relieves this beneficent operation from the stigma of being considered a possible means of communicating syphilis.

Extract from the Independent Practitioner.

EIGHT CASES OF SYPHILIS OF THE FINGER IN MEDICAL MEN. REPORTED BY FESSENDEN N. OTIS, M.D.

Case I. W. N., M.D., æt. 26, was in good general health up to three weeks ago. In the latter part of September, 1881, he noticed a small, red papule on the superior surface of the forefinger, at the middle of the second phalanx. He had been for over a month on the venereal service of Charity Hospital. He had never noticed any previous abrasion at the point of appearance of the papule. He is not aware of having had any special exposure of this finger. He had been in the habit twice a week of making vaginal examinations of venereal patients. The papule was painless, had a pale red color and a slight boggy feel, but was without distinct induration. Thinking it might contain a splinter, an incision was made into it, but no splinter was found; no pus, only blood, escaped. This cut remained open and assumed the form of a small ulcer with sharply cut edges,  $\frac{3}{8}$  of an inch in diameter and  $\frac{1}{8}$  of an inch in depth, circular, with smooth, shiny, red floor. This exuded a secretion which accumulated, dried, and formed a scab which dropped off at the end of twenty-four hours, with an escape of 3 or 4 drops of sero-purulent fluid. It would exude, dry, and scab over again. I examined it about the 10th of November, when exudation first commenced, and detected in connection with it an enlarged and somewhat tender gland in the axilla. Several days after I found an enlarged epitrochlear gland in the right arm. A deep red areola with a scaly border now surrounded the lesion. Patient's health was good up to three weeks ago (or six weeks after the discovery of the papule), when without apparent cause he began to suffer with headache and general malaise. Insomnia well marked; appetite pretty fair. He, however, kept about his work at the hospital; he had some febrile excitement; temperature about 100 in the evening. These symptoms all disappeared in about ten days, and he returned to his general health, and was feeling perfectly well, when on December 18, looking, as had for some time been his habit on retiring, he discovered on his body a distinct eruption which he described as papular in character.

Examination at the present time (about eleven weeks from the discov-

ery of the original lesion) shows a discrete eruption of papules both fine and coarse, scattered over the body, most prominent on the chest and arms, and pale red in color; also distinctly indurated glands in cervical, epitrochlear, and inguinal regions, characteristically enlarged, and one also in right axilla enlarged and tender. The throat is congested, a single scab is found in the hair. The patient, who had been desirous of waiting until the diagnosis of syphilis was absolutely certain, was now put upon a systematic treatment for that disease.

Case II. 1878, S. S. B.; presented with a papule of the middle finger of right hand, about the size of a silver three-cent piece, just over the second joint, elevated and non-suppurating. It appeared as a red spot about two weeks previous, and has gradually become elevated, and with no distinct induration. About six days ago a dry scale appeared in the centre and a molecular necrosis started from that joint. He has poulticed it for the last week. There is no local tenderness but some pain in the arm stretching up from the lesion as far as the elbow. A single enlarged gland is found in the corresponding axilla about the size of a filbert.

The patient was advised that the lesion was probably syphilitic, and instructed to wait for signs at other points. In this case there was no positive induration about the lesion, only a boggy feel. The patient has no idea of any date of exposure. He attended a confinement on April 6, but had no suspicion of syphilis in the case.

I lost sight of this patient until July, 1881, when I was informed by Dr. E. F. Ward, of New York, that he subsequently had roseola and a papular eruption developed, and that he was at this time suffering from hemiplegia, which had come on suddenly.

Case III. In latter part of December, 1871, the patient, a physician, noticed a red spot upon the dorsal surface of the right index finger, near the base of the second phalanx. The spot when noticed was about an inch in diameter, and continued slowly to increase in circumference and to become raised, until within three weeks it reached nearly the size of a three-cent piece and looked precisely like a vaccine vesicle without a central depression. It soon became incrustated, but by the application of poultices the crust was removed, leaving a well-rounded ulcer about one-third of an inch in diameter, excavated, clean, without discharge, the edges raised and all of a deep red color and sluggish in appearance, neither inclining to heal itself nor to yield to treatment. The base was boggy and no induration whatever could be discovered, although searched for by a distinguished surgeon in this city, and by him the lesion was confidently pronounced to be at most a *simple* chancre. Another surgeon familiar with syphilis was equally confident of its simple character. A third who saw it while a small papule regarded it with suspicion, and advised the patient to consult some surgeon who gave especial attention to such cases. The patient then came to me. My opinion was strongly in favor of a syphilitic origin for the lesion, but the patient desired to wait for further proof before commencing constitutional treatment. The ulcer showed no sign of improvement. The extended finger was bandaged to a splint, rendering the point immovable, and allowed to remain so two weeks, but without improvement. I then advised the application of iodoform powder. Within forty-eight hours a decidedly favorable change had taken place, and within ten days the ulcer was perfectly healed. Once or twice afterward the skin was accidentally broken, but

on reapplying the iodoform it healed kindly. From the first appearance of the spot till the healing of the ulcer no pain or discomfort was felt. After some four months—that is to say, in the following April—the doctor called to inquire about an eruption which had made its appearance a week or two previously upon his breast and arm chiefly, sparsely on his face and head, which was quite bald. The eruption was of a dull red color, slightly elevated, and several papules were encircled by a line of exfoliating epidermis. They were free from itching, and were discovered by the accident of their appearance on the face and scalp, as they caused no sensation and were not preceded by any fever, headache, or other constitutional disturbance. Examination showed distinct gland enlargements in the cervical, inguinal, and epitrochlear regions. He was then for the first time put on a regular mercurial course, viz., one pill of mass. Hydrarg., 2 gr. combined with 1 gr. of the exsiccated sulphate of iron, three times a day. At about this time this patient's wife began to complain of a profuse vaginal discharge, having been previously in good health, and free from any leucorrhœal trouble. About three months subsequent to this, a characteristic papular eruption appeared on her face and body, general gland enlargements distinct and prominent in groin, neck, and epitrochlear regions. She too was then put on a systematic mercurial course similar to that of her husband. Both were kept under treatment for about a year and a half, when no signs of syphilitic trouble having appeared for several months, it was discontinued. To-day, Feb. 21, 1882, the doctor reporting by my request, states that now nearly ten years from the disappearance of the disease, and the cessation of all treatment, both he and his wife have been and are now free from any evidence of syphilis.

Two other cases of the occurrence of syphilis in physicians where the initial lesion was situated on the right forefinger have been reported to me during the present winter, and in addition to these I am cognizant of three other cases in New York City, two gynecologists and one distinguished surgeon, who have had syphilis through an initial lesion of the finger.

The first point of interest in considering the foregoing cases is the danger to which any physician who treats diseases of females or attends females during the parturient condition is more or less exposed, and the necessity of using extraordinary precautions in examining or attending every case to which a suspicion of syphilis could possibly attach, and habitually to protect by previous application of elastic collodion any cracks or abrasions about the nails or joints of the fingers, especially of the right forefinger, and to use a lotion of carbolic acid (1 to 100) or of the liquor potassa permanganatis, 1 part to 40 of water, as a habit after all digital examinations of the female genital apparatus.

It may be safely asserted that a pre-existent abrasion or fracture of the skin or mucous membrane is absolutely essential to the acquirement of syphilis; and that in any case when syphilis has been acquired without the recognition of a local initial lesion, it has been present, but overlooked. Destruction of tissue is not essential to the perfect initial lesion of syphilis.

Healing of an abrasion may take place after an inoculation, just as promptly and as perfectly as if no inoculation had taken place, and the point of induration following may be so small and insensitive that it would easily escape observation.

In case of the wife of physician (Case III.), the initial lesion was not discovered. Her eruption was only preceded by a profuse vaginal discharge. There was never any recognized open lesion on the penis of her husband. It might be said of her that the inoculation had taken place through the influence of the semen. Mireir, of Marseilles, has made repeated experiments of inoculating the semen of a person in the active stage of syphilis, upon healthy persons, but without effect. It is more probable—in fact, almost a certainty—that the disease in this case was acquired from a syphilitic papule, of which there were at one time several on the penis. Abrasion occurring during coition coming in contact with an abrasion of the os or vaginal mucous membrane, might there establish the initial lesion, resulting in the vaginal discharge, which preceded the syphilitic eruption, which was the first recognized evidence of syphilis in the doctor's wife.

The second point of interest is in the uniform and characteristic physical appearances, presented in the initial lesion of syphilis of the finger, coming on always as a papule, coming soon to be of a deep red color, and presenting a superficial abrasion, becoming circular and deeper by a slow molecular necrosis; not by ulceration with formation of pus. The secretion thin and serous, and drying into a scab which is soon displaced by the fluid accumulating underneath.

The entire absence of induration; in its place a slight, flat, juicy-looking, boggy swelling or elevation about like a small peppermint in size and thickness—early appearance of an enlarged and somewhat tender gland in the axilla of the corresponding side.

I would like to call attention to an interesting fact in regard to the efficacy of remedial measures, viz., that in five of the above-mentioned cases a careful systematic mercurial treatment was pursued during a period varying from one and a half to two and a half years. Eight healthy children have been born, and both they and the parents have continued free from any evidence of syphilis up to this date.