

PART II.  
CHANCROID AND SYPHILIS.

CHAPTER I.

CHANCROID.

Definition.—Transmissibility to Animals.—Cause of Chancroid.—Indefinite Inoculability.—Relative Frequency.—Methods of Contagion.—Explanation of Apparent Long Period of Incubation.—Situation of Chancroid.—Symptoms.—Course.—Character of Scar.—Variation of Chancroid from Type, in Initial Form, in Shape, in Number, in Size, in Duration, in Pain, in Condition of Base, in Course (Relapse).—Complication by Vegetations, by Syphilitic Chancre, by Inflammation, by Gangrene and Gangrenous Phagedena, by Pultaceous Phagedena, by Bubo, by Lymphitis.—Diagnosis of Chancroid.—Prognosis.

CUSTOM in America has adopted the name "chancroid" (originated by Clerc), to express that form of contagious venereal ulcer which is not accompanied by any constitutional syphilitic infection. It is widely known also as soft chancre, or simple chancre; but, of the many terms, perhaps chancroid is the least liable to lead to ambiguity, and it is essentially appropriate, as signifying a disease which, while it is like a (syphilitic) chancre, is still, in fact, widely different from it. For true chancre, the initial lesion of syphilis, the term syphilitic chancre will be adopted.

Fournier's<sup>1</sup> definition of chancroid is clear, comprehensive, and could hardly be improved. Chancroid "is a specific malady, consisting in a peculiar ulcer which secretes a virulent, auto-inoculable pus. It is a malady exclusively local, never giving rise to any symptom which can be referred to a constitutional infection."

Of the three distinct venereal diseases—gonorrhœa, chancroid, syphilis—gonorrhœa is, strictly speaking, the most venereal, being practically never acquired except in sexual intercourse. Chancroid, equally virulent, is less venereal, and recognizes many methods of infection

<sup>1</sup> Art. "Chancre," "Dict. de Méd. et de Chir. pratiques."

besides sexual congress; while syphilis is of all the least virulent (in the sense of the facility with which it may be acquired), and the least venereal, as will be shown, when treating that subject.

Chancroid is an affection only perpetuated by contagion, but for this sexual intercourse is not essential. Wherever upon the human body a chancroid is found, there, it may be positively affirmed, pus from some other chancroid has been deposited under conditions favorable for its absorption. No amount of sexual excess, no degree of uncleanness, no irritation, traumatic or chemical, however prolonged, no simple or poisonous ulceration from other specific source (syphilis, cancer, glanders, etc.), nothing, in short, can produce chancroid except chancroid (chancroidal bubo of course included): so that, as Fournier puts it, if all the patients in the world with chancroid would avoid contact with others until their malady got well, the disease would cease from off the face of the earth. Of syphilis this much cannot be said; its methods of propagation are far more numerous than simple local contagion.

Chancroid, furthermore, is transmissible to animals. Some experimenters have obtained only negative results; others have been successful, showing that, although animals may receive the disease, they do so imperfectly and often not at all. Chancroid developed on animals heals quickly. Auzias Turenne, in 1844, first successfully inoculated monkeys, rabbits, cats, and dogs, with chancroid. Robert de Wetz, in 1850, inoculated his own arm four times with pus taken from chancroids artificially developed upon a cat and a monkey: all four inoculations took and produced the characteristic ulcer. Diday, in 1851, from a chancroid which had been produced by inoculation upon the ear of a cat, inoculated himself successfully on the penis. The ulcer became phagedenic and was attended by suppurating bubo. Ricordi<sup>1</sup> brought about a chancroidal bubo in a rabbit, which he had inoculated with pus from the chancroid of another rabbit.

It was in connection with experiments of this order that Auzias Turenne invented the term "syphilization," since he found that reinoculation of chancroid pus upon animals resulted in a less and less perfect ulcer each time, until no effect was produced at all.<sup>2</sup> As Auzias Turenne recognized no difference between chancroid and syphilis, he supposed that this immunity of the skin of animals to chancroid pus indicated that they were saturated with syphilis, "syphilized," and exempt from all further trouble from that disease. Hence the term syphilization, which, starting in a misconception, has been perpetuated even to our day, and has still some conscientious advocates.

*Cause.*—As already stated, the cause of chancroid is unique. It can be produced only by the contact of pus from a similar ulcer upon some portion of the skin or mucous membrane under conditions favorable for absorption. No one is exempt. The bearer of a chancroid is just as

<sup>1</sup> Quoted by Bumstead. <sup>2</sup> Letter to the Academy of Sciences, 1850, quoted by Rollet.

liable to be poisoned by the pus of his own sore as is a perfectly healthy person. Other diseases do not furnish any immunity.<sup>1</sup> Positive results are obtained by inoculation upon patients with cancer, with syphilis, with scrofula, with elephantiasis, and a previous attack of the disease does not insure in any manner against succeeding attacks.

Rollet,<sup>2</sup> following Von Roosbroeck's lead, has demonstrated by experiment that the contagious principle resides in the pus-corpuseles, and, if these be filtered out, all inoculations with the remaining fluid prove negative. What this contagious principle or virus is, has not yet been discovered. Assertions have appeared from time to time (Donné, Didier, Salisbury), that a peculiar parasite has been discovered, now animal, now vegetable, which was the essential poisonous agent, but the authors of all such theories thus far have failed to substantiate their claims, and it still remains for the chemist or the microscopist to demonstrate in exactly what the poison of chancre consists. Thus far the pus of chancre is identical, under all tests, with pus from any other ulcer. By its poisonous effects alone it is distinguishable. These effects may be studied by inoculation.

Chancroidal pus preserves its poisonous properties if kept cool in tightly-corked bottles. Boeck states (oral communication) that they are in the habit of sending it from the hospitals of Christiania into the surrounding country for purposes of "syphilization." It may be frozen, and still inoculable when thawed. Boeck believes that it loses its virulence after having been dried. Dried pus certainly sometimes fails to give positive results when remoistened, but this cannot be relied upon, as Sperino<sup>3</sup> used a lancet which had been laid aside for seven months, upon the point of which was some dried chancroidal pus. Three punctures were made with this lancet, all of which took. Heat, however, at the boiling-point, destroys the activity of the virus; acids, alkalies, alcohol, all destroy its virulence at once, and decomposition is fatal to it. When gangrene attacks a chancre, the sore is no longer poisonous.

<sup>1</sup> It has been stated that chancre will not take upon a patient suffering at the time from acute febrile disease. To test this point, Dr. Fiset, at the Charity Hospital, at my suggestion undertook some experiments. They were, unfortunately, interrupted after the doctor had inoculated one patient three times upon the thigh—the gentleman in charge of the fever wards being fearful lest syphilis should be introduced among his patients. The one case inoculated was, however, carefully studied by Dr. Fiset. The inoculations were made at the end of the second week after chill, the patient's temperature ranging at 103–104° Fahr. Boeck's method was used, and three punctures made, one-quarter of an inch apart. Two of the punctures took perfectly, although the process of ulceration was very slow. On the thirteenth day pus from one of these ulcers was inoculated upon a healthy patient, with the effect of producing a characteristic chancre. The ulcers on the leg of the typhoid patient finally became confounded in a single ulceration two inches in diameter, which was dressed with iodoform, and on the patient's discharge from the hospital, convalescing, after a sojourn of fifty-three days, the ulcer was reduced to a diameter of one inch, and was healing. The ulcers were under observation after inoculation forty-six days. The evening temperature remained near 104° for several days after inoculation.—KEYES.

<sup>2</sup> "Traité des Maladies vénériennes," Paris, 1866.

<sup>3</sup> "Studi clinici sul Virus sifilitico," Turin, 1863.

With the above, and kindred exceptions, a mixture of chancroidal pus with any indifferent menstruum does not injure its virulence; such as water, urine, saliva, sweat, mucus, muco-pus, spermatic fluid.

As to the amount of pus required to effect contagion, probably one microscopic pus-corpusele is sufficient. The smallest possible prick of the skin to which the pus is applied will produce just as characteristic a chancre as will the bountiful smearing of a raw surface of any size. Puche<sup>1</sup> got positive results by inoculation from a drop of pus diluted with half a glass of water.

The poisonous effect of chancroidal pus is evinced by its power of rapidly begetting a chancre whenever it is brought within the reach of absorption, by a removal of the cuticle or external layers of epithelium from any surface. Inoculation or hetero-inoculation signifies the contact of this pus with an abraded surface of any individual other than the one who furnishes the pus. Auto-inoculation signifies such contact upon the body of the bearer of the chancre. Evidently such inoculation may be the result of accident or design.

Chancroidal poison is indefinitely auto-inoculable. Lindmann inoculated himself 2,700 times, and was still making successful auto-inoculations when last reported by Fournier. The body of Auzias Turenne is said to have been found covered with chancre scars at his death, showing that he did not shrink from practising his pet theory, "syphilization,"<sup>2</sup> upon himself.

By the process of syphilization, immunity of the skin to the poison is obtained. A certain pus is employed, and reinoculated until it will no longer produce a pustule; then fresher pus from some other younger chancre, until it also fails; and until, finally, no inoculation gives a positive result. This much syphilizers have taught us, and they have also taught us that the different regions of the body are susceptible in a different degree to the action of a chancroidal pus of given virulence; for, after the chest fails to take, the arms may still be inoculated successfully; and, finally, when the arms have acquired immunity, the thighs will still furnish characteristic results upon inoculation. This immunity, however, obtained by frequent and continuous irritation of the skin with numerous chancre ulcers, is more apparent than real, since it is only temporary; for, after the skin has had a rest for some months, inoculations often again give a positive result (Boeck, oral communication).

Hence the rule, practically true: an individual may have chancre as often as he is exposed; there is no limit to the number of possible attacks.

<sup>1</sup> Ricord, "Leçons sur le Chancre," Fournier.

<sup>2</sup> The term syphilization is here used in the sense first given to it by Auzias Turenne, but it must be understood that, in accordance with the views advanced in this treatise, the term is essentially incorrect, as the virus of true syphilis is entirely distinct from that of the chancre ulcer.

FREQUENCY OF CHANCROID.—Statistics as to the relative frequency of chancroid and syphilitic chancre are usually made up from hospital experience. Such statistics show that chancroid is twice, or sometimes more than twice, as frequent as syphilitic chancre. Puche, from ten years' statistics at the Hôpital du Midi, gives eighty per cent. of chancroid cases. Fournier arrives at a far different result from the statistics of his patients seen in private practice, patients whose social position was usually high. Out of three hundred and thirty-four cases, he found<sup>1</sup> only eighty-two of chancroid, while all the rest were syphilitic chancre. The reasons of this singular difference of figures are obvious. The lower classes of society who enter hospitals are given to intemperance, and careless in their habits. Furthermore they are poor, and consort with the lower orders of prostitutes, those who are unable to care for themselves when diseased, but must continue at their profession to gain their daily bread. Most of these also are old, have had syphilitic chancre, and contagious secondary lesions in their youth, and are therefore incapable of giving syphilitic chancre, while many of them possess old chronic chancroid, which is kept from getting well by constant local irritation, and which forms a hot-bed of infection for all who approach. Old prostitutes get used to the idea of having a chancroid, and consider it a small matter. The more refined and wealthy males of the upper classes, on the contrary, are careful in their selection of females. They seek the young, and those apparently sound. Young prostitutes are often unaware of having syphilitic chancre or secondary lesions of the vagina, while they can scarcely be ignorant of the presence of the more formidable-looking chancroid with its possibly accompanying inflammatory bubo, and fear prompts them to seek medical aid, and give up their profession temporarily in the latter case, while they might innocently continue it in the former. Furthermore, none of the upper classes appear at hospitals, and few of the lower who have syphilitic chancre (often an insignificant-looking, painless lesion), while they run in all haste for relief for the painful, angry-looking chancroid. Finally, syphilitic chancre occurs but once in a lifetime, and rarely lasts long; while chancroid may be acquired an indefinite number of times, and may possibly in certain forms last a number of years. Hence the rule: in hospitals, chancroid far outnumbers syphilitic chancre. The same holds for the practice of the young surgeon, or for those who attend the poorer classes; while, in the higher walks of life, ulcerations about the penis will be mainly herpes, or abrasions, or balanitis, syphilitic chancre next in frequency, chancroid least common.

METHODS OF CONTAGION.—Contagion is immediate, i. e., by direct contact, as in sexual intercourse, or manipulation of chancroids with fissures or abrasions on the hand; or mediate, i. e., through some intervening agency, as by carrying the poison upon the fingers in scratching,

<sup>1</sup> "Dict. de Méd. et de Chir. prat."

and thus inoculating some abraded surface. The virus is fixed and not volatile, and actual contact with the pus is essential to infection. Contagion takes place in the vast majority of instances during the sexual act, but, as any abraded surface upon any part of the body is capable of absorbing the virus, cases of accidental, mediate, or immediate contagion occasionally occur, as on the finger of the accoucheur. Spontaneous auto-inoculation is common, especially where the virulent pus is retained between two tegumentary surfaces lying in contact, as beneath the prepuce.

Mediate contagion in sexual intercourse is possible. Thus, a man with a long prepuce, but no abrasions, may carry the virus from one woman and deposit it in another, with whom he cohabits at a short interval. Then washing himself, he may escape infection, after having none the less occasioned chancroid in the last-mentioned woman. The same intermediate part may be played by the sound vagina—a woman receiving the poison from one man, transferring it shortly to another in sexual intercourse, and herself escaping. This is mediate contagion. Cullerier's<sup>1</sup> two famous experiments on women establish beyond dispute the fact that chancroidal pus may lie for some length of time in contact with a vagina, presenting no abrasions, without being absorbed. In these experiments chancroidal pus from the groin was deposited in the vagina, the latter showing no abrasions, and its secretions being inoculated with negative result. In one case the pus was left in the vagina thirty-five minutes, in the other nearly an hour; the patients, ignorant that they were the subject of experiment, were made to walk about, closely watched. Finally, some of the vaginal secretion was again collected, and successfully auto-inoculated in both cases. The vagina was thoroughly washed out with an astringent solution, and did not become ulcerated in either case, although the poisonous pus had remained for some time in contact with its walls.

These two cases at once raise the question, Can chancroidal pus be absorbed except through an abrasion? Evidently not at once, as the two cases prove, nor probably in any length of time through the hard epithelium of the skin, for hospital patients, little careful as to cleanliness, handle with impunity their chancroids from day to day, and do not inoculate their fingers, except through preëxisting abrasions; but that the poison may enter through a mucous surface not visibly abraded is certain, whether by direct absorption, or by corroding for itself a way, has not as yet been demonstrated; but in all probability by the latter means. In this way may be explained chancroid with a comparatively long period of incubation. A man lies with a woman having chancroid. He inspects himself after the act and finds no abrasion, but, neglecting to wash himself, pulls forward the prepuce and goes on his way. A small quantity of virulent pus remains in the little pocket alongside of

<sup>1</sup> "Quelques Points de la Contagion médiate," Mém. de la Soc. de Chir.

the frænum, where the mucous membrane is very thin and always moist. The pus, by its acridity, destroys the superficial layers of epithelium in a few days, and then, finding a loop-hole for absorption, poisons the spot at once, and the patient appears, perhaps a week after his suspicious intercourse, with a chancroid only just commencing, the long period of incubation here being more apparent than real. In like manner a few pus-corpuscles rubbed into the mouth of a minute follicle during the friction which accompanied the sexual act could not be washed away, and by the same process of corrosion give rise to a characteristic ulcer, after a period of apparent but not real incubation (follicular chancroid).

**SITUATION OF CHANCROID.**—Chancroid is rarely found far from the genitals, for the obvious reason that it is usually too conspicuous to be lightly handled, except by the accoucheur or the surgeon who has it under treatment. It was at one time supposed that chancroid could not occur upon the head or face, but now medical literature contains several cases of undoubted chancroid of the face, giving positive result by auto-inoculation, and not followed by syphilis (Bassereau, Boeck, Puche, Rofeta, and others); while syphilizers have abundantly proved that the head and face, as well as any other portion of the tegumentary expansion, may be successfully inoculated with chancroid. Boeck, however, in studying the susceptibility of the different portions of the body to the action of chancroid poison, found that inoculation produced upon the cheeks or head only small, shallow ulcerations of comparatively short duration;<sup>1</sup> the chest and abdomen come next, then the arms, and, finally, the thighs, which would furnish positive results to inoculation, after the latter had become impossible upon the upper portions of the body.

Chancroids upon the male genitals appear by preference in the sulcus on either side of the frænum, but may occupy any position even to the inside of the urethra, where they are occasionally found, usually occupying the meatus, and thence extending inward, or wholly concealed inside the canal. Duncan inoculated his own urethra by transporting into it some chancroidal pus. He got urethral chancroid with double bubo.<sup>2</sup> Ricord figures a case of deep urethral chancroid, with chancroidal-looking ulcerations of the bladder, but tubercular ulceration has been suggested to explain this unusual case. Intra-uterine chancroids in the female have been reported (Delmas and Combal). Scrotal chancroids mainly result from auto-inoculation of abrasions by discharges from some chancroid of the penis or under the prepuce. Chancroid of the anus is rare in the male. In the female, where the poisonous discharges trickle from the posterior vaginal fourchette over the anus whenever the patient lies upon the back, they are not uncommon. In the male, when not resulting from pederasty, they are rare. That

<sup>1</sup> But that chancroid may be occasionally severe on the head is proved by a case reported by R. W. Taylor, in Brown-Séguard's "Archives," No. 5, 1873. The article contains an excellent digest of the literature of the subject.

<sup>2</sup> "Cours des Maladies syphilitiques," Petit-Radel, 1812.

chancroid may develop upon pathological as well as normal tissues is proved by the successful inoculation by Boeck and others upon elephantiasis, and by a case reported by Breslau<sup>1</sup> of chancroid found upon an epithelial cancer of the uterine neck giving positive results by inoculation.

**Symptoms.**—The symptoms of chancroid may be best observed by studying the course of the artificial ulcer produced by inoculation. The smaller the inoculation the more perfect the result. It has been noticed in the large chancroids produced by inoculation of scarified surfaces that the lesion often develops from many initial centres, numerous points on the scarified surface "taking," the whole constituting a multiple chancroid, which soon unites into one. To inoculate properly, a lancet or pin should be used; the latter can always be obtained new, clean, and sharp. If a lancet be employed in any doubtful case to inoculate as a test, it should always be scrupulously cleaned before use. With the lancet, Boeck's method is the best. Scrape a little pus on the point of the instrument, hold the point at right angles to the surface of the skin, and cause it to penetrate just barely below the epidermis, then rotate the instrument, held in the same direction, half round and back, withdraw it and smear over the little red point with whatever pus remains upon the end of the lancet. Within twenty-four hours after such an inoculation, a reddish blush will envelop the puncture; on the second day the little dark speck of dried blood is surrounded by a faint, inflamed areola. Occasionally there is already commencing pustulation on the second day, usually on the third day, sometimes later. The red areola enlarges, and surrounds a vesico-pustule. Break this, and beneath will invariably be found an ulcer, a perfect, fully-formed chancroid in miniature. If left alone, the vesico-pustule becomes an ecthymatous pustule, which usually breaks in a few days after it has reached the size of a split pea. The circular ulcer which results, continuing circular, enlarges and deepens. It usually becomes stationary before it reaches the size of a half-dime, but may become as large as a silver quarter of a dollar, or occasionally far exceed it. This ulcer is a true chancroid, resembling in every minute particular the ulcer from which it sprung by inoculation, and tending to run a similar course.

It is evident, from the foregoing description, that chancroid has no period of incubation or hatching. When the virus is placed in a position where absorption is possible, it commences its work at once, and rapidly reaches the stage of ulceration. In the same way the chancroid acquired in sexual intercourse has no period of incubation, this point being perhaps of all the most important, as distinguishing it from syphilitic chancre. Usually by the third day after suspicious intercourse, occasionally as late as a week, or rarely later, where the pus has had to employ several days to corrode the epithelium before gaining access to

<sup>1</sup> "Archiv der Heilkunde," 1861.