

was allowed to remain in the vagina for nearly an hour and did not take effect.¹

Tarnowski² has repeated these experiments in a number of instances with the same result.

It would thus appear that in rare instances the sound vagina may play the part of a mere medium of contagion, and the same may possibly be true of the genital organ of the male.

According to Auspitz,³ who cites his authorities, mediate contagion was known to Widemann, Vella, Fernel, Thierry de Hery and Ambrosius Paré, de Blegny, Astruc and Swediaur.

FREQUENCY OF THE CHANCROID.—Of the three venereal diseases, gonorrhœa is undoubtedly by far the most frequent, as shown by the experience of every surgeon, and numerous cases of this disease are treated by patients themselves who never appear for advice or consultation.

The frequency of the chancroid as compared with that of the true chancre is not so readily determined; indeed we have reason to believe that it has varied at different periods, and we know that it varies in different classes of society.

At the time when a distinction between the chancroid and chancre first began to be recognized, it was the universal testimony that the former was much more frequently to be met with than the latter.

Bassereau's notes of patients presenting themselves at M. Ricord's clinique in 1837 and 1838 would even show the immense disproportion of thirty chancroids to one true chancre, which is almost incredible, but the former must at any rate have been greatly in the majority.⁴

M. Puche prepared a table of all the venereal ulcers resulting directly from contagion which entered the Hôpital du Midi during ten years (1840–1850) and formed a total of 10,300, of which 8045 were chancroids and 1955 chancres;⁵ in other words, the ratio of the former to the latter was nearly as 4 to 1. The statistics of other observers represented the ratio as somewhat less, as for instance, 3 to 1 or 2 to 1; but all concurred in showing the decidedly greater frequency of the chancroid especially when the observations were made in hospitals frequented by the lower classes of society.

Now, taking this very same hospital, the Hôpital du Midi, in 1869 and 1870, Mauriac (op. cit.) observed the curious fact that these figures were almost reversed; the chancroid was in the minority; and it bore the ratio of 1:1.8 to the true chancre; in other words, *there were nearly two chancres to every chancroid.*

¹ Quelques points de la contagion mediate. Mém. Soc. de Chir. de Paris, quoted in Leçons sur le chancre, p. 255.

² Vortrage, p. 55.

³ Die Lehren vom syph. Contagium, p. 89.

⁴ Rareté actuelle du chancre simple, par Chas. Mauriac, Médecin de l'hôpital du Midi, Paris, 1876, p. 17.

⁵ Fournier, Leçons sur le chancre, p. 15.

But observe what took place in the same hospital in 1870–1 during the war with the Germans and the siege of Paris. Statistics at such a time were, as might be supposed, less perfectly kept, but they were sufficient to show that in 1870 the chancroid was to the true chancre in the ratio of two to one, and in 1871 in the ratio of three to one, thus reversing again the tables of their comparative frequency. Mauriac says: "After the reign of the Commune, our wards, which had been occupied during the siege by the wounded, were filled with venereal patients, and the greater part of them with simple chancres" (chancroids).

In the years succeeding the Franco-German war, the ratio of the chancroid once more gradually diminished until in 1874 it reached the lowest figure it has ever been known to attain, and was, compared with the true chancre, as one to six and four-tenths; in other words, there was only one chancroid to six chancres recorded on the register of the Hôpital du Midi during that year. In the following year, it was a little more, viz., one to five.

Doubtless some errors crept into the above statistics, but making every reasonable allowance for the same, they unquestionably show a gradual decrease of chancroidal ulcers in comparison with true chancres. It should be stated that Mauriac's statistics are confirmed by those from other large cities, as Lyons. I have no accurate statistics of my own to offer, but I cannot be mistaken in asserting that I meet with the chancroid much less frequently than I did twenty-seven years ago, when I was commencing practice.

To what is this gradual decrease in the frequency of the chancroid owing? It is impossible, I think, to give a perfectly satisfactory reason. Mauriac, who believes in the existence of a specific chancroidal virus, ascribes it to the gradual extinction of this virus in consequence partly of the police regulations controlling prostitution in Paris, and partly owing to the fact that a chancroid rarely escapes observation, and, once cured, does not reappear; whilst, on the contrary, syphilitic lesions are less likely to attract the notice of the patient, and are of constant recurrence. It is hardly necessary to state that the increase of chancroids during the siege of Paris is more readily explainable on the ground of the great laxity of morals and the inattention to cleanliness that prevailed at that time.

Again, the comparative frequency of the simple and syphilitic chancre depends in a measure upon the position in the social scale to which patients belong, since, as shown by the observations of MM. Martin and Belhomme,¹ and those of M. Fournier,² in the better classes of society the chancre is much more frequent than the chancroid. M. Fournier says: "In private practice *the simple chancre is rarer than the syphilitic chancre.* I have been especially struck with this difference, which may be expressed in figures as follows:

| | |
|--------------------------------|-----|
| Simple chancres, | 82 |
| Syphilitic chancres, | 252 |

¹ Traité de pathologie syph. et vén., p. 127.

² N. Dict. de méd. et de chir. prat., Paris, t. vii., p. 67.

"Thus it is a curious fact, which may have some interest in a prophylactic point of view, that *the simple chancre, which is common in the lower classes, becomes rarer and rarer, relatively to the syphilitic chancre, in proportion as we rise in the social scale.*" M. Fournier would explain this fact, on the ground that men of the lower classes most frequently contract venereal diseases from old prostitutes who are already protected by one attack of syphilis from another, but who are still subject to chancroids; while the women who are sought after by the higher classes are commonly younger and fresher, and hence more likely to be affected with true chancres or secondary symptoms, and to convey syphilis to those with whom they have connection. The different habits of the upper and lower classes of society must also have an influence.

SEAT OF THE CHANCROID.—The chancroid is most frequently seated in the neighborhood of the genital organs, simply because these parts are most exposed to contagion, and not in consequence of any peculiar aptitude which they possess. If chancroidal matter be inserted beneath the epidermis of any other part of the body, a chancroid is equally the result. Nor is this the limit to its seat; it is also found within various mucous canals—as the urethra, vagina, and rectum—opening upon the surface, at as great a depth as these passages can be explored by the senses during life, and post-mortem examinations have been supposed to prove the possibility of its presence in the bladder, though such instances are questionable. The whole external integument, and whatever portions of the mucous membranes are accessible to the implantation of the poison, are therefore exposed to become its seat. The frequency with which it is met elsewhere than upon the genitals, depends in a great measure upon the habits and cleanliness of persons exposed to contagion.

The most reliable statistics as to the seat of the chancroid, in the two sexes, are those of Fournier¹ and Debaugé,² the former confining his observations to men, the latter to women.

I. FOURNIER'S TABLE (MEN).

| | |
|--|-----|
| Chancroids of the glans or prepuce, | 347 |
| " on the sheath of the penis, | 21 |
| " on various parts of the penis, as, for instance, occupying the prepuce and sheath, the sheath and the glans, etc., | 24 |
| " on the penis (exact situation not recorded), | 25 |
| " on the meatus, | 11 |
| " within the urethra, | 5 |
| " of the scrotum, | 3 |
| " on the pubes, | 3 |
| " on the fingers, | 2 |
| " on the upper and inner portions of the thighs, | 2 |
| " of the anus, | 1 |
| " of the anterior thoracic region, | 1 |
| Total, | 445 |

¹ N. Dict. de méd. et de chir. prat., Paris, t. vii., p. 72.

² Thèse de Paris, 1858, p. 62. Statistics collected in the service of M. Bonnarie, at the Hospice de l'Antiquaille, Lyons.

II. DEBAUGE'S TABLE (WOMEN).

| | |
|---|-----|
| Chancroids on the fourchette or fossa navicularis, | 78 |
| " on the labia majora, | 19 |
| " on the labia minora, | 16 |
| " of the meatus (of these 19 extended within the urethra), | 21 |
| " in the neighborhood of the meatus, | 2 |
| " of the vestibule, | 4 |
| " of the clitoris, | 1 |
| " at the entrance of the vagina (just external to the carunculae, and between the carunculae and the labia minora), | 17 |
| " of the vagina, behind the carunculae, | 7 |
| " of the uterine neck, | 1 |
| " of the margin of the anus, | 23 |
| " in the groove between the nates, | 5 |
| " of the perinæum, | 5 |
| " on the internal surface of the thighs, | 5 |
| " on the hypogastrium, | 2 |
| Total, | 206 |

In reviewing these tables, it is worthy of observation how large a majority of chancroids are genital and "peri-genital," or those situated upon or in the neighborhood of the genital organs in both sexes; indeed "extra-genital" chancroids, or those at a distance from the genitals, are mentioned only as rare exceptions. As we shall see hereafter, there is a marked difference in this respect between the chancroid and the true chancre, the latter being found in a much larger proportion upon distant parts of the body. This difference is accounted for by the fact that the chancroid is transmitted almost exclusively in sexual intercourse, while the initial lesion of syphilis, arising as it may from either a primary or a secondary lesion, finds many other modes of origin than the mere act of coitus.

The chancroid is said not to be confined to the normal tissues of the body, but also to affect pathological growths. In a case related by Prof. Breslau, of Zurich, "a simple chancre was developed upon a mass of epithelial cancer attached to the cervix uteri, and the virulent nature of the sore was demonstrated by the successful inoculation of the pus upon the patient's thigh." This case must, however, be received with some reserve, now that we know that the secretion of lesions other than chancroidal may sometimes be auto-inoculated.

A singular exception to the rule that all portions of the body are equally prone to contract a chancroid has been noticed, viz., that this ulcer is rarely met with in practice upon the head, face, or buccal cavity, where, on the contrary, the initial lesion of syphilis is not uncommon. At one time this fact excited no little discussion, since it was supposed to conflict with the distinct nature of the chancroid and syphilis, and to favor the idea that the seat of the contagion exerted an influence either for or against contamination of the general system, and hence that the chancroidal and syphilitic poisons were one.

The important bearing of this question led to an extensive investigation for the purpose of ascertaining if the alleged exemption was

founded on fact. Fournier¹ took a prominent part in this labor, and, from a diligent search through medical works, and inquiry of those who made a special study of venereal diseases, was able to collect 150 cases of venereal ulcers upon the head and face, all of which, however, with the exception of 5, were chancres. These five exceptional cases, in which the ulcer was supposed to be a chancroid, had been observed by MM. Ricord, Venot, Devergie, Bassereau, and Diday; but Ricord confessed that his case, an ulceration at the base of one of the superior incisor teeth (figured in his *Iconographie*, pl. 21), was unreliable, and the other four were thought to be imperfectly reported; and thus there could remain no doubt of the rarity of the chancroid upon the region in question.

It has been since ascertained that the chancroid can be developed upon the head and face by artificial inoculation. Puche² and Rollet³ have inoculated its virus with success upon different parts of the head in 20 instances; Bassereau⁴ and Prof. Huebbenet,⁵ of Kieff, upon the lips and cheeks in five; Robert⁶ upon the temple, nose, and lips in three, and in all the sore so produced was entirely free from induration, and was not followed by secondary symptoms—a fact which utterly demolishes the argument of the “unitists.”⁷

Still farther, at least two instances of the occurrence of chancroids upon the cephalic region have been met with in clinical experience, in which every precaution appears to have been taken to establish the diagnosis. The first is reported by Fournier himself, from the notes of M. Puche, of the Hôpital du Midi; the sore was situated upon the lower lip, and artificial inoculation of its secretion upon the patient's abdomen, as well as an accidental inoculation upon the patient's thumb, proved successful; no general symptoms showed themselves within seventy-four days from the appearance of the ulcer, during which period the patient was kept under observation.⁸ In the second case, observed by M. Profeta,⁹ at Palermo, a serpiginous chancroid, of two years' duration, was situated upon the face, and its secretion was inoculated in five places by M. P. upon himself, with the effect of producing five chancroids, which have not been followed by any symptoms of syphilis during eighteen months that have since elapsed.

I shall content myself with this brief sketch of the discussion relative to the “cephalic chancre,” which for a time attracted no little

¹ Étude sur le chancre céphalique, Union méd., Paris, fev. et mars, 1858.
² Nadau des Islets, De l'inoculation du chancre mou à la région céphalique, Thèse de Paris, 1858.

³ Gaz. Méd. de Lyon, Dec., 1857.

⁴ Buzenet, du chancre de la bouche, Thèse de Paris, 1858, p. 41.

⁵ Union méd., Paris, 20 mai, 1858.

⁶ Nouveau traité des mal. vénériennes, Paris, 1861, p. 380.

⁷ Robert's reply to this, that a chancroid may be forced upon the tissues of the head and face by artificial inoculation, but that the same tissues will develop a syphilitic ulcer even from the chancroidal virus, when contaminated *in coitu*, appears to me weak and puerile. What possible difference upon the development of the sore can it make whether the virus is deposited by the surgeon's lancet or by the penis in connection *ab ore*?

⁸ N. dict. de méd. et de chir. prat., Paris, t. vii., p. 76.

⁹ Gaz. méd. de Lyon, 9 juin, 1867, p. 275.

attention, but which assumes less importance now that it is known not to conflict with a duality of poisons. Its only practical bearing is this: that the rarity of the chancroid upon the head and face, furnishes strong ground of belief that any venereal ulcer met with upon this region is syphilitic. As I have already stated, I had under my care years ago, at the New York Dispensary, a case of cephalic chancroid.

THE CHANCROID FROM INOCULATION.—Thanks to the ease with which the chancroid may be inoculated upon the person bearing it and the safety with which this operation may be performed, we have the rare opportunity of developing this disease at pleasure, and watching its progress from its very commencement. We may plant the seed and observe its growth, and thus obtain a knowledge of its natural history which we may afterwards compare with the various stages and varieties met with in practice.

Artificial inoculation is usually performed upon the person from whom the matter is taken, and is then called *auto-inoculation*; when practised upon another person it is called *hetero-inoculation*.

How is the operation performed? Some portion of the external integument should be selected which is sufficiently open to observation, and where, if the inoculation prove successful, the sore is least likely to attain a considerable size, or to affect the neighboring ganglia in case its early cauterization, as soon as the purpose of the inoculation has been accomplished, should fail to destroy it.

The experiments of the advocates of syphilization show that the sides of the chest, below the nipples, best fulfil these indications. In this situation chancroids rarely attain a large size, and the axillary ganglia are too far removed to be readily affected.

M. Clerc recommends an ordinary pin as the preferable instrument to be employed, for the following reasons: it is always at hand and may always be had clean; it is not formidable to the patient; it is not likely to make a deep wound, and we find that a superficial insertion of the virus affords greater security against large and troublesome sores.

But for convenience no instrument is better than the common lancet; only be certain of its cleanliness. Moisten its tip with the purulent secretion, and place the point perpendicularly upon the spot you wish to inoculate; with a slight impulse the point is made to penetrate to the derma; the instrument is turned once round on its axis and withdrawn; any remains of the pus upon the instrument is smeared over the orifice of the puncture, and the operation is completed in less time than it has taken to describe it. No after care is required.

The evidence of a successful inoculation is usually apparent on the following day; sometimes not until after the lapse of two, three, or even four days. The point inoculated is of course reddened from the outset; if the inoculation “takes,” a pustule, surrounded by an inflammatory areola, appears within the time just mentioned, and on removing the epidermis an ulcer is found, penetrating the whole thickness of the skin, its edges abrupt, jagged, and undermined; its

outline circular; its floor of a grayish color, and presenting slight elevations and depressions best seen through a magnifying glass.

If, on the other hand, the pustule be left unbroken, the contained matter concretes and forms a scab of conical form, which increases by additions to its circumference and covers the ulcer beneath, which is being further developed.

The tendency of this ulcer is to extend, at first rapidly, and afterwards more slowly, for several weeks; then comes a period during which no increase is perceptible, and the sore appears stationary; and finally the process of repair is set up, usually commencing at the circumference, and the ulcer closes, leaving a cicatrix, which is more or less permanent according to the depth and extent of the preceding ulceration.

As soon as all doubts are removed, the sore should be destroyed, by first removing its secretion and then applying a strong caustic, as the carbo-sulphuric paste, or fuming nitric acid.

From this experiment, which has been performed in many thousand instances with the same result, we are justified in inferring:

1. That the chancreoid has no period of incubation; that the pathological process is set up the moment the poison is introduced beneath the epidermis.
2. That the chancreoid first appears as a pustule, but that it essentially consists in an ulcer underlying the elevated epidermis, and presenting the characteristics above stated.
3. That the course of a chancreoid may be divided into three stages: the progressive, stationary, and reparative.
4. That the chancreoid is capable of healing spontaneously, without the intervention of art.

We shall presently see how far these conclusions are confirmed by cases met with in practice. There should be no marked difference, since the circumstances attending the inoculation and contagion are the same, except that in the former we take care to remove all disturbing influences, and leave the disease to pursue its regular course.

THE CHANCROID FROM CONTAGION.—Development.—The first point that claims our attention is the time of development of the chancreoid after exposure; in other words, is there an absence of a period of incubation with the chancreoid from contagion, as we have found to be true of the chancreoid from inoculation? This question becomes more complex as soon as we turn to cases met with in practice; since patients have often had several recent connections, and we cannot tell with certainty which was really the infecting one. Even if there has been but one exposure after a long period of continence, we are still obliged to rely upon the statements of unprofessional persons, often careless in their habits, in our attempts to ascertain the exact time of the appearance of the sore. Their testimony can include only what they themselves have observed, and not necessarily what has actually taken place. The chances are that many of them will

post-date the appearance of the ulcer, which was entirely unexpected, and consequently not observed at its commencement.

Yet with this liability to error, we find in the main that the testimony of patients confirms the results of artificial inoculation, and that they represent the time after exposure when their ulcers had attained sufficient size to attract their attention as having been but a few days. Thus, in fifty-two cases in which there had been only a single connection for a long period (three to five months or more), Fournier found that the patients assigned the date when they first noticed their chancreoids as follows:

| | CASES. |
|--|--------|
| The first day after exposure, | 6 |
| The second day after exposure, | 2 |
| The third day after exposure, | 9 |
| From the third to the fourth day, | 4 |
| The fourth day, | 3 |
| The fifth day, | 1 |
| The sixth day, | 3 |
| From the seventh to the eighth day, | 13 |
| The ninth day, | 1 |
| The tenth day, | 2 |
| The eleventh day, | 1 |
| The thirteenth day, | 2 |
| From the thirteenth to the fourteenth, | 3 |
| From the seventeenth to the twentieth, | 2 |
| Total, | 52 |

It appears from this table that the existence of the chancreoid was recognized by the patient in 24 cases, from the first to the fourth day; in 17 cases, from the fourth to the eighth day; and in 11 cases after the eighth day; hence that in 41 cases out of 52, or in about 4 cases out of 5, it was seen during the first week, and in only 11 cases at a later period.

With regard to these eleven exceptional cases, Fournier also states that the sore, at the time it was discovered, presented such a degree of development as to show that it had already existed for a number of days, ranging probably from five to twelve.

Taking into consideration the inadvertence and the incapacity of patients as observers, we are therefore justified in concluding that there is the same absence of incubation with the chancreoid from contagion that we know to exist with the chancreoid from inoculation. And as stated by Ricord, there is still another circumstance to be taken into account: when the virus is deposited upon the sound integument or mucous membrane, it cannot immediately take effect; it has first to act as a common irritant, eroding the surface and destroying the epidermis or epithelium; and only when this is accomplished can it exercise its specific action. But this preparatory work requires time, and by so much delays the appearance of the ulcer. In this manner we can readily explain the rare instances in which the evolution of a chancreoid has taken place after an interval of several days following exposure. In point of fact, it has no period of incubation, whether produced by contagion or inoculation.