ON
DIFFERENT FORMS
OF
PRIMARY SYPHILITIC INOCULATION.

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IN the year 1856, I published an account¹ of some cases of primary syphilis, in which the test by inoculation gave no indication of their real nature; and I came to the conclusion that the laws which regulate the development of the pustular or suppurating syphilitic sore, do not apply to the primary infecting chancre.

Further experiments and observations appeared to establish the fact, that the morbid action which infects the patient's system is essentially of a different nature to that which has usually been produced as the result of artificial inoculation.

In the year 1857, M. Ricord² and his zealous assistants entered upon a formal investigation of the subject of the inoculability of the secretion of an indurated chancre upon

¹ 'British and Foreign Medico-Chirurgical Review.'

² 'Leçons sur le Chancre,' p. 267.

the patient who had it. The conclusion which they came to was that an indurated chancre, as a rule, was not capable of being thus inoculated.

Under these circumstances it becomes evident that the product of the indurated sores (those affected with specific *adhesive* inflammation) is not that with which the experiments on syphilisation have been performed; and if it be true that pustular inoculation gives rise to a form of disease similar to itself, and that indurated sores are those alone which may be expected to be followed by secondary symptoms, then it becomes equally manifest that no constitutional syphilitic affection is likely to follow the ordinary practice of syphilisation. Accordingly, if we look through the whole record of these cases, we shall scarcely find one where the practice has been followed by any secondary symptoms attributable to the artificial inoculations. The fear, which so generally prevailed when the practice of syphilisation was first advocated, of introducing fresh syphilitic matter into the patients' constitutions, must now, therefore, be allowed to have been in a great measure ill founded.

Although the product of the specific adhesive inflammation, when fully established, is not, as a rule, capable of being again inoculated with the lancet upon the system which has produced it, yet both experiment and observation concur in proving that it may be so modified by certain actions as to become again inoculable upon the same individual. Under these conditions, however, the inoculations are uncertain in their results, producing very little local irritation, and capable of being transmitted by successive inoculations a comparatively very small number of times.

CASE 1.—H. C— came under my care at the Lock Hospital on the 2d of February, 1854. She had a syphilitic eruption upon the skin, and several irritable sores on the inner margins of the labia and perinæum. The inguinal glands were enlarged and indurated.

February 4th.—Several spots were inoculated from angry-looking sores on the margin of the anus and labia.

6th.—Several fresh inoculations were performed from other irritable sores.

11th.—Each point inoculated had produced a kind of pustule. Fresh inoculations were made with the secretion of the original sores, and with that of the artificial inoculations.

13th.—Upon each point last inoculated a vesicle had appeared.

14th.—The secretion of each vesicle had become turbid.

16th.—Fresh inoculations were performed from the sores, natural and artificial, which furnished the largest amount of secretion. Eighteen hours afterwards the inoculated spots were found to be slightly reddened.

18th.—Forty-four hours after the last inoculations, no result was perceptible. Several fresh spots were inoculated with the secretion of the sores near the anus, and with that of the sores artificially produced.

22d.—The last inoculations had produced no effect. The inoculations of the 11th were forming small dry scabs. The eruption has now faded.

24th.—Several spots were inoculated with as much secretion as could be obtained from any of the sores.

27th.—The inoculations last made had produced no effect.

March 2d.—The sores, natural and artificial, had all healed. The patient was discharged as cured, having been under treatment exactly four weeks, and having apparently, during the last two weeks, not been susceptible of any further inoculation by means of the secretion derived from her own sores.

It was at first difficult to say, why in this case some of the inoculations were capable of being reproduced, and some not; why those last made were of a different character from the first; and why the results of all the inoculations disappeared in so short a time.

These questions appear to derive a solution from the fol-

lowing two cases, which show that, although an infecting sore is not capable of being inoculated under ordinary circumstances, yet the same sore will, under a state of irritation, produce an inoculable secretion, and that the effects of the inoculation of that secretion will vary according to the amount of irritation present at the time the secretion was produced.

CASE 2.—A lad was admitted into the Lock Hospital on the 29th of July, 1858. He had had gonorrhœa six months previously, but otherwise had been free from any venereal affection until about a fortnight before his admission. He then had a superficial sore behind the corona glandis, which healed in a few days. Two or three days after the first appearance of this sore, a little pimple appeared on the outer skin of the prepuce. This, on the 26th of July, presented all the appearances of a well-marked Hunterian chancre. It discharged from its surface a white turbid secretion. To a portion of this a drop of acetic acid was added, and it was examined by the microscope, and found to contain no pus-globules.

July 27th.—The secretion was inoculated in several points on the patient's thigh.

29th.—This was the day the patient was admitted into the hospital. The secretion from the sore was again examined, and found to contain no pus.

31st.—Several fresh inoculations were made. The sore continued to increase in size.

August 3d.—None of the inoculations had succeeded. The glands at the back of the neck were now enlarged, and the skin presented an incipient syphilitic eruption. A small blister was applied to the surface of the sore.

5th.—A superficial slough had formed on the surface of the sore, which yielded in parts a puriform secretion. This was inoculated upon the thigh in several points.

7th.—The sore now again secreted no pus. Fresh inoculations were performed.

10th.—The sore was dressed twice yesterday with the

sabine ointment, and now yields a copious secretion of pus. This purulent secretion was inoculated in several points on a different part of the thigh.

12th.—The inoculations last made had succeeded. The sore still yielded a copious secretion of pus.

14th.—The inoculations both of the 5th and 10th had now succeeded, but not those of the 7th. They presented the appearance of circular red patches, with some elevation and thickening of the cuticle. In one place there was the appearance of a vesicle, from which a serous fluid exuded. This fluid was again inoculated upon the patient's thigh. The original sore, which had been dressed with water, now again yielded no pus.

17th.—The inoculation from the inoculation had succeeded. It presented the appearance of a red circular patch, with slight thickening of the skin, from which the cuticle was abraded. It had not in the least assumed the appearance of a pustule, nor was anything like pus secreted from its surface. A single pustule, surrounded by very little inflammation, had, however, formed in one of the points first inoculated.

19th. — The inoculations appeared as separate red patches on the skin, which, in these situations, was slightly raised and thickened, but no induration extended into its substance. The solitary pustule which appeared had dried up.

24th.—One of the inoculations first made had a slight tendency to ulcerate; the others were desquamating and losing their colour.

CASE 3.—Bridget C—, æt. 17, was admitted into the Lock Hospital on the 26th of August, 1858. She had suffered from a thick yellow discharge between two and three months. This was followed, in the course of as many weeks, by the appearance of two small places on the upper part of the left thigh. These, upon her admission, presented all the characters of well-marked primary indurated chancres in a state of progress.

The surfaces of these sores were covered by a scanty tenacious secretion, in small quantity, which, upon microscopic examination, yielded no pus.

This secretion was carefully inoculated upon the patient's thigh.

August 28th.—The inoculation was repeated. There was, at this time, no indication of the sores having any tendency to heal.

31st.—No result from the inoculations. The two sores had now been dressed for two days with the Unguentum Sabinæ, and yielded an abundant secretion, distinctly purulent. The secretion from each sore was inoculated in several points close together, in two separate places in the thigh.

September 2d.—The inoculations last made have produced the appearance of small incipient pustules in both situations. The secretion from one of these was inoculated in two or three points on the thigh lower down.

4th.—The inoculations from the inoculations had apparently succeeded. One of the inoculations of the 31st of August had produced a small pustule. The others had produced only vesicles. The skin over one of these was broken.

9th.—The inoculations from the inoculations, performed on the 2d of September, have dried up. The inoculations first in order of the 31st of August had entirely lost their puriform character. They now appeared as circular patches, yielding a serous secretion, mixed with epithelial scales. The original chancres were now in process of healing.

In the accompanying Plate VIII, fig. 3 shows the appearances of the inoculations upon the tenth day.

11th.—The inoculations first in order were desquamating, and of a light-red colour. The inoculations from the inoculations appeared as small red pimples, which were gradually losing their colour.

17th.—The original chancres were cicatrized. The inoculations were fading and desquamating.

23d.—The inoculations from the inoculations were still

visible, and appeared as shining scales of discoloured epithelium.

25th.—A few faint secondary spots appeared on the body. The original sores were quite healed, leaving slight induration. The corresponding glands in the groin were still enlarged and hard.

Fig. 4 shows the appearance of the inoculations on the twenty-sixth day.

October 4th.—A fifth drawing was made by Dr. Westmacott, and shows the remains of the original sores, and of the inoculations on the thirty-fifth day, and also the remaining traces of the inoculations from the inoculations.

This patient now left the hospital, but again presented herself on the 8th of October. The inoculations appeared as brown spots, the colour of which gradually faded into that of the surrounding skin.

It is quite possible that the persistence of the inoculations and their peculiar colour in the two last-recited cases may have depended upon the syphilitic diathesis of the patients. But this in no way militates against the fact, that inoculations succeeded at one time, while they failed at another, under precisely the same conditions of the general system.

In Case 1, the inoculations succeeded so long only as the sores furnishing the secretion maintained their irritable character, and failed as soon as this irritability subsided.

In Cases 2, and 3, the sores, the natural secretion of which could not be inoculated with the lancet upon the patient, furnished an inoculable secretion when artificially irritated.

In all the inoculations above recorded, the effects appear to have been in direct relation to the amount of irritation present, and generally in proportion to the puriform condition of the secretion inoculated. It might be supposed, that in the first case the sores ceased to be inoculable because they were in a healing condition, but this would not account for the inoculations produced from

them ceasing to afford an inoculable secretion within four or five days of their first appearance. The inoculation then of the secretion of a sore affected with specific adhesive inflammation may take place, but is not easily performed, when once the patient's system has been affected with syphilis. When successful, the results are very different from those which follow the inoculation of the secretion from naturally suppurating sores. In the latter case each puncture produces a pustule, which, by repeated inoculation, will produce its like a great number of times. In the former, the inoculation as a rule fails, and succeeds only under circumstances of accidental irritation. It then can be repeated a very limited number of times, and the results obtained, even by a number of punctures in one situation (as represented in Plate VIII, figs. 3, 4, and 5), are comparatively of a trifling description.

There is, however, reason to believe that these same inoculations, if practised upon a patient whose system was not already affected with syphilis, would give rise to well-developed primary infecting sores.

The suppurative form of syphilitic inoculation offers one variety which has not hitherto, I believe, been separately described, and which I have ventured to designate as the phlegmonoid variety.

In this affection the inoculated point passes very rapidly into active suppuration. The disease, as a rule, involves the cellular tissue, and the sore produced is surrounded by induration, which, however, generally fades into the consistency of the surrounding parts. The best-marked specimens of this disease which I have witnessed have been followed by an eruption of a brick-red colour, confined to one part of the body, and not unlike in appearance the eruption which occasionally follows the administration of copaiba. After a few days, this eruption subsides of its own accord, does not recur, and requires no specific treatment.

The induration which surrounds this form of suppurative inoculation renders it very liable to be confounded in prac-

tice with the primary infecting sore. The character of the secretion is the only means by which the two can sometimes be distinguished. In the phlegmonoid variety, as in the ordinary suppurating sores, the secretion is distinctly purulent. If a small quantity of the secretion be taken, and a drop of acetic acid added, very little will be seen under the microscope but the distinct nuclei of the pus-globules, and these all very much of the same size and shape.

In the primary infecting sore, on the other hand, the secretion treated in the same way will be found to consist of epithelial debris, mixed, perhaps, with globules of different shapes and sizes.¹

The phlegmonoid suppurating sore is further characterised by having firm and raised edges. This depends upon the effusion of lymph which circumscribes it. The induration produced by the effusion of lymph is sometimes of considerable extent, but, in general, it wants the peculiar and characteristic hardness produced by the specific adhesive inflammation, and it does not, in general, terminate abruptly, but gradually fades into the consistency of the surrounding parts.

CASE 4.—A gentleman presented himself in the end of March last, having a sore on the right side of the frænum. This was surrounded by very considerable induration, which ultimately spread for about three quarters of an inch along the urethra. At one time this induration terminated quite abruptly, and from the feeling alone I should not have been able to distinguish it from the induration which accompanies a primary infecting sore. Upon taking a small quantity of the secretion, which was copious, and adding to it a drop of acetic acid, very little could be seen under the microscope but the nuclei of the pus-cells, well formed, and all of the same size.

This disease appeared two days after exposure, and was

¹ In examining the secretion of syphilitic sores, it is essential that they should not have been subject to any previous artificial irritation.

followed in three weeks by an eruption confined to the left arm, and presenting no specific character. The sore became deeper and deeper, and ultimately opened on the opposite side of the frænum, discharging a considerable quantity of pus from both openings. This patient, who had picked up some medical information in Paris, would scarcely be persuaded, finding the extent of the induration and seeing the eruption, that his system was not affected. He has, however, recovered, and remains well, without any sign of constitutional disease, and without any specific treatment that could have prevented the appearance of secondary symptoms.

CASE 5.—A gentleman, who had for four years been under the care of some of the first medical men both here and upon the Continent, and who had fairly exhausted all the ordinary modes of treatment, became desirous, as a last resort, to try a modified course of syphilisation. He had at the time a deep copper-coloured eruption, considerably raised in parts, upon the head, face, and neck; with patches of a similar kind on various parts of the body, and a large ulcer on the foot.

On the 13th of April, some pus was taken from the last patient (Case 4), and inoculated in three points upon this patient's arm.

April 16th.—Three inflamed pustules had formed. Two fresh inoculations from the secretion of one of these pustules were made upon the upper arm.

19th.—The inoculations of the 13th had all become surrounded by induration, which became less and less from the centre towards the circumference. They were all broadly fringed with a halo of a pinkish-red colour, which gradually faded into the colour of the surrounding skin. The diameter of this redness was about the size of a sixpenny piece. The inoculations of the 16th had become pustules, not surrounded by much redness. Two inoculations with the secretion of the inoculations of the 16th were performed on the left side of the abdomen.

22d.—The hardness around the inoculations first made was less. These presented the appearance of circular ulcers, with raised edges, affording an abundant secretion of pus. The inoculations second in order were surrounded by induration, but not to the same extent as the first. The inoculations of the 19th had become well-formed pustules, surrounded by redness to a very slight extent. Two fresh inoculations were made on the abdomen, below those last mentioned.

26th.—The inoculations of the 16th were now surrounded by more general diffuse induration than those first made. Two fresh inoculations were made below those of the 22d.

28th.—The inoculations of the 26th present the appearance of very small pustules (forty-eight hours). The inoculations of the 19th discharged a large quantity of pus, and were surrounded by considerable irritation. The inoculations of the 22d were much less inflamed; those of the 26th still less. Two fresh inoculations.

May 2d.—The original inoculations on the arm were still very irritable. They appeared as circular ulcers, with slightly undermined, but raised edges, surrounded by a red areola. The inoculations made on the abdomen were each in succession less in size, with less inflammation and less secretion than those of a previous date. Two fresh inoculations with the matter taken from the previous inoculations which furnished the largest amount of secretion.

6th.—The inoculations last made appeared as very small irritable points, affording scarcely any secretion. The inoculations on the arm were still red, inflamed, yielding an abundant secretion of pus, and presented something the appearance of boils after they have been some days opened. The inoculations first made on the abdomen had the same character. The edges were raised, red, and terminated quite abruptly. The secretion of pus from these was most abundant. Two fresh inoculations from the sores on the abdomen yielding the largest amount of secretion.

13th.—The syphilitic eruption on the face, neck, and

head now showed a decided improvement. The ulcers resulting from the inoculations first made were nearly three fourths of an inch in diameter.

17th.—An eruption of a brick-red colour, somewhat resembling nettle-rash, or the eruption which follows the use of copaiba, appeared on the upper part of the left thigh. It was raised above the surface, with small intervals of nearly healthy skin. It was accurately defined, and strictly limited to the upper part of the thigh, and was totally unlike any eruption which the patient had previously had.

21st.—The eruption had extended, still with a defined outline and minute intervals of comparatively healthy skin. Portions of it were of a more livid hue than before.

23d.—The accompanying drawings, made this day by Dr. Westmacott, represent the appearance of the inoculations (with the exception of those second in order), and also the eruption which resulted from them, and which, in my opinion, was not of a syphilitic nature.

Plate IX, fig. 1, represents the inoculations first made as they appeared on the forty-first day, still in a state of progress.

Fig. 2 represents the third set of inoculations, as they appeared on the thirty-fifth day of their development; the fourth set on the thirty-second day; the fifth set on the twenty-eighth day; the sixth set on the twenty-fourth day; the seventh set on the twenty-second day; and the eighth set on the eighteenth day.

At this period the eruption had lost much of its peculiar brick-red colour, and had assumed generally a livid hue.

27th.—The eruption of the thigh had much faded. The surface over which it extended was now of a more livid hue, but there were still visible a few scattered points of a brick-red colour. The margin of the affected skin was perfectly well defined, and the skin in the neighbourhood had undergone no alteration in any respect. The inoculations on the arm showed a slight tendency to contract. Those subsequently made also show a disposition to heal. The syphilitic eruption on the face and other parts had improved in character.

The patient attributed the improvement to the inoculation, and remarked that some patches of eruption on the arm and body, that no previous treatment "could move, have now altered their character."

June 4th.—The eruption on the thigh was dying away.

11th.—The first inoculations were now covered with thickened skin. They were still surrounded by induration, which gradually diminished to the consistency of the surrounding parts. The inoculations second in order had fairly healed. The inoculations last made, which a few days before had nearly healed, now assumed a slight tendency to spread. There was a marked improvement in the old syphilitic symptoms. Patches of eruption had in a great measure lost their colour, and healthy portions of skin appeared upon their site. The ulcer on the foot, which had remained unhealed for between two and three years, had much improved. The eruption on the thigh (consequent, as I believe, upon the inoculation) had entirely disappeared without treatment, but the skin over which it had spread was of a slightly purple colour.

This patient was now recommended to go into the country, and shortly after left England for the Continent. The face was then quite clear, but some patches of eruption still remained on the body. From the commencement of the inoculations no internal treatment was adopted, which could have influenced the course of the disease.

14th.—The patient (Case 4) from whom the pus was taken for the purpose of inoculation presented himself. His sore had healed a fortnight ago, leaving induration under the skin, but not in the skin. He was quite free from any appearance of constitutional disease.

The character of the inoculated sores in the above case accurately resembled that of the sore from which the secretion was originally taken, allowance being made for the difference of situation. In both cases the sores were surrounded by induration; in both they yielded a copious

secretion of pus; and in both they were followed by an eruption confined to one part of the body, and disappearing permanently without any specific treatment.

The nature of the secretion in the diagnosis of primary venereal sores is of considerable importance. It is, perhaps, the only means by which a suppurating sore of the phlegmonoid variety can, in some instances, be distinguished from an infecting chancre. In both cases the induration is caused by the deposit of lymph; and although this deposit is generally much more accurately defined, and terminates much more abruptly in the infecting chancre, yet such is not always the case. The morbid actions are, however, essentially different. In the one case the lymph is converted into pus; in the other case it is thrown off in the débris of a scanty discharge, or remains until it is again taken up into the system. The first is a form of suppurative, the latter of adhesive inflammation. It is true that any sore, if exposed to artificial irritation, may readily yield a puriform secretion; but in any doubtful venereal case, if the sore be dressed with water dressing for a day or two, the nature of the discharge will then become apparent.

During parts of the years 1855-6, tables were kept at the Lock Hospital, and for some time at King's College Hospital, of the nature of the discharge presented by venereal sores upon microscopic examination. Among these cases were ninety-five presenting all the ordinary characters of primary infecting sores. In none of the instances was the secretion (care being taken to avoid causes of accidental irritation) purulent. The secretion consisted generally of epithelial débris floating in a serous fluid, or of globules of various shapes and sizes, which did not, upon the addition of acetic acid, yield the well-defined nuclei characteristic of pus.

In a considerable number of cases the secretion appeared to consist of nothing but epithelial débris and serous fluid, and in some there was no fluid secretion at all.

During the same period, the tables referred to show

seventy-three cases of secondary disease resulting from primary indurated sores. On the other hand, during nearly the same time, one hundred cases of syphilitic sores were noted in which the secretion was, upon microscopical examination, judged to be distinctly puriform.¹ These cases were, as a rule, treated without mercury; and in two instances only did the patients, as far as I know, return with secondary symptoms. In both these cases there had been more than one source of infection, so that the suppurating sore may have made its appearance either before or after the infection of the general system.

If it be true that suppurating syphilitic sores are readily inoculable with the point of the lancet upon the patients who bear them, and that the indurated sores (those affected with the specific adhesive inflammation) are, as a rule, not capable of being thus inoculated, it would then appear that the suppurating and indurated sores have often been mistaken for each other. In Dr. Sperino's experiments on syphilisation, for instance, we find it frequently asserted that the secretion from an indurated chancre was inoculated, and produced the specific pustule. These assertions are so much at variance with more recent experience, that the only conclusion that can be drawn is that these so-called indurated sores belonged in reality to the phlegmonoid, or some other variety of suppurating syphilitic sores.

¹ Many doubtful cases were excluded.

DESCRIPTION OF PLATE VIII.

Fig. 1.—Indurated sores in process of healing.

„ 2.—Original sores, covered with epithelium.

„ 8.—Inoculations from sores artificially irritated, showing the appearance on the tenth day.

„ 4.—The appearance of the inoculations on the twenty-sixth day.

„ 5, A.—Original sores healed.

„ B.—Remains of inoculations on the thirty-fifth day.

„ C.—Remains of inoculations from inoculations.

A

B

C

Fig 1.

Fig 3.

Fig. 4.

Fig. 2.

DESCRIPTION OF PLATE IX.

FIG. 1.

- A.—Inoculations of secretion from a suppurating sore, as they appeared on the forty-first day. Phlegmonoid variety.

FIG. 2.

- B.—Third set of inoculations, represented on the thirty-fifth day.
C.—Fourth set, on thirty-second day.
D.—Fifth set, on twenty-eighth day.
E.—Sixth set, on twenty-fourth day.
F.—Seventh set, on twenty-second day.
G.—Eighth set, on eighteenth day.
H H.—The eruption on the thigh, as it appeared on the eighth day, being the forty-first from the first inoculations.