Remarks

ON THE

UNITY OF THE SYPHILITIC VIRUS.

BY

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It has certainly been of great benefit to humanity that the fact has at last been established, that not all, and we may say not even the larger number, of primary venereal sores produce constitutional symptoms when left to the cure of nature; or, at least, when only treated by local non-specific remedies. This fact, which was well known more than three centuries ago, will, amongst others, be found asserted in the writings of the old French surgeon, Thierry de Hery, and, more recently, in those of Boerhaave and other authors; but it seems to have been forgotten, until it was revived by Ricord.

But, from the doctrine of Ricord, there has, in later years, sprung up a new theory, now very generally adopted—that of the duality of the virus. The followers of this theory assert, that the species of venereal ulcer which is not followed by constitutional symptoms is produced by a virus, altogether different from the true syphilitic poison.

Now, it is perfectly true that, practically, there often is a marked difference in the development and characters of the two species; so that an exercised practitioner can foretell whether there will result a general infection of the organism or not. But that is all at present; and even this will, in many instances, not be possible. In fact, we can never with perfect security rely upon these characters; and the only sure method of ascertaining the nature of the ulcer is to await the final result, *infection* or *non-infection* of the system. It is, for this reason, more accurate to designate the two species by the terms, *infecting* and *non-infecting* ulcers.

The question, if these two species really be of quite different origin, will perhaps seem to have only a secondary importance; but it is in the interest of science to try to solve it, and the practical application will show itself afterwards.

For many years, I have tried to find out the truth on this point by careful observation and by experiments; and I shall try to give a rapid sketch of the results and conclusions to which I have been led.

The defenders of the dualistic doctrine hold that there always is a marked difference between the symptoms which appear on the infected spot when true syphilitic poison has been implanted, and those which follow the transmission of the non-infecting ulcer. The first are described in this way. In the first week after the infection, or even for two, three, or four weeks, there will be seen no sign at all, especially if the epidermic or epithelial layer be not abraded. After this time, there will appear a small indurated elastic knot, which gradually increases in size, and rises a little over the surface of the surrounding parts. It will then present the appearance of a papule with hardened basis, or a small tubercle; and is generally slightly coloured. The top of this papule may become a little abraded, and put on a slight crust, or discharge some thin, transparent fluid. Very soon afterwards, or at the same time, elastic swelling of the nearest lymphatic glands will be felt, often ex-

tending to the more distant, and then producing the likeness of a rosary or string of beads. Some weeks afterwards, there will appear symptoms of the infection of the whole system—swelling of the glands of the neck, roseola, angina, etc.

Here, then, is a very marked and characteristic symptom, which at once shows a great difference from the other species of venereal ulcers; and it is undeniably true, that constitutional syphilitic disease may commence with such a slight symptom. I have watched it from its first appearance in this manner, and can bear evidence to its existence, though it is seldom that one can get a patient under observation before it has grown large and conspicuous. But this “pseudo-chancere”, as it was first called by Auzias Turenne (who also was the first to understand its true character), has especially been observed from its first beginning in the cases in which matter from constitutional symptoms was inoculated on healthy persons to ascertain the once contested truth of their infectious character. From these experiments, and from some observations, it has afterwards been concluded, that constitutional symptoms always commence in the same manner, and that all other ulcers not resembling this pseudo-chancere are non-infecting. But here lies, apparently, the error. The symptom described will arise very often, when the source of the infection is a secondary symptom, and especially if it have a non-suppurating surface; but, as this is not the most common way in which syphilis is transmitted, so this symptom is not the most common one which appears after the transmission.

A great number of infecting chancres do not, in fact, begin in this way, which is more the exception than the rule; but appear, like the non-infecting, with a pustule, or a vesicle, or with a little suppurating spot if the epithelium or epidermis have been removed before the matter was deposited. After this, there forms an excavated ulcer, which generally, in its progress, acquires a certain amount of hardness. Sometimes this hardness grows very considerable; so that the ulcer at last only exists as a small excavation in the centre of a large, hard, elastic tumour, like a cleft almond or a split pea. This is the true Hunterian chancre. In other cases, the induration is not so strongly marked, and the suppurating ulcer is larger and deeper, and often there can only be felt a slight stiffness in the bottom of this (*chancre parcheminé*.)

In some cases, too, the induration lasts only for a short time, or is so slight that it can only be felt by certain fingers (as Ricord has told us)—that is to say, it does not exist at all; and yet the chancre shows itself in the end as infecting.

According to my experience (and probably all who have seen a certain number of cases will agree with me), there exists, besides the true typical pseudo-chancere and the soft non-infecting ulcer, a great variety of chancres, of different aspect and development, which often prove to be infecting.

To explain these exceptions (as they at first were thought to be), there exists a very ingenious theory—that of the “mixed chancre.” This theory explains away all difficulties. When a chancre is not typical, it is a mixed chancre; that is, produced by a double infection, first from true syphilis, and on the same spot from a soft ulcer, or *vice versa*. The possibility of such a double infection, but only the possibility, has been established beyond doubt by experiment; the soft chancrous matter being inoculated on the hard non-suppurating chancre with complete success. But still the question remains, whether all these varieties of forms really are produced by nature in this way. These varieties are more common than the true typical form; that which should be the rule

is, as most observers will have seen, only an exception. Can it be possible, that both diseases are so very often mixed together? It may, perhaps, be possible in some large towns, where both are widely spread; it would be perfectly impossible in country districts and smaller localities, where they are seldom met with. The improbability of this explanation must, at least, be apparent; and I shall later try to explain that it can be proved by experiments to be erroneous. After all, I think it reasonable to conclude, that the characters of the two species are not so widely different as to justify the opinion that they are of different origin. I shall now go over to the experimental part of my inquiries; in which I hope to bring forth sure proofs that both species of ulcer belong to a common source, the true syphilis.

Until a few years ago, it was commonly believed that a true syphilitic primary ulcer was inoculable with the lancet, at least in its first stage of development. This was considered so certain, that a non-inoculable ulcer generally was pronounced to be not specific at all. It may be remarked, that the experimental inoculations always were made on the patient himself, or on another person labouring under constitutional syphilitic symptoms. Now, it is commonly stated by the dualists, that the true syphilitic ulcer, the infecting chancre, is not inoculable on the patient himself or on another syphilitic person; and that an ulcer which, by inoculation, produces the characteristic pustule, is a non-infecting chancre or not syphilitic. There could not be a greater change of opinion. The property which was considered essential for the syphilitic primary ulcer, is now considered a proof of the contrary. Still some authors admit that there may be exceptions to this rule; but these exceptions are then explained to appear only when the chancre is mixed.

To try the truth of these different opinion, I have inoculated a great number of chancres, especially all the infecting chancres, which have come under my observation during some years. The result is, that I have found almost all inoculable, when I only did it properly. How is this to be explained?

As a rule, the greater number of infecting chancres which present themselves suppurate, even when the hardness is well pronounced; and these will very often give rise to a pustule by the first inoculation. The more freely they suppurate, the more sure will the result be, and the larger the pustule produced. But sometimes it will happen, that the inoculation fails to produce any result. If we look at the chancre, we generally observe that it is not in a state of healthy suppuration; the surface is pale, covered with gangrenous substance or with decayed remains of cells mixed with a thin serous fluid. This matter, just like the secretion from a phagedænic ulcer, will not produce a syphilitic pustule; but if we try to alter the secretion, to produce a free suppuration with fresh granulations, renewed inoculations will generally produce the desired result. And if the first inoculation do not produce it, we may continue day after day, and at last the pustule will appear. I have, in some cases, continued in this way for three or four weeks before I got the pustule; and it is necessary that both the patient and the experimenter do not lose patience too early. If so much pains be taken, there will be very few cases in which the result (a pustule) does not appear. If other means fail, the application of powder of savine to the surface of the chancre will often hasten the result. The dualists will probably explain this fact in their own way, by supposing all these chancres to be "mixed." Setting all other arguments aside, I will only point out that this explanation is impossible, because a mixed chancre could easily be inoculable in the beginning,

and lose this property afterwards; but could never begin by being non-inoculable, and some weeks after produce a characteristic pustule.

I conclude from these experiments, which are so numerous that they cannot well be related here, that the infecting chancre is inoculable just like the non-infecting under certain circumstances; but that some circumstances may render it—as, indeed, often the non-infecting—refractory to this process.

With the true typical pseudo-chancre, the inoculation is more difficult. On its smooth surface, where no secretion or only a slight watery discharge takes place, the lancet will generally not find anything wherewith to perform the process.

In this way, a lecturer may easily show his pupils how an infecting chancre is refractory to inoculation on the patient himself. But even this form can be rendered inoculable; and is often brought to this point by a natural process. When it is exposed to irritation of any kind so strong as to produce ulceration, and consequent repair by suppuration, it will be found to be inoculable like any non-infecting ulcer. The only difficulty is to bring this hard, indolent knot to suppurate; but as this generally can be done by patience, it will prove no exception to the rule. There is, however, one thing which can easily lead to a deception on this point. When a slight irritant is applied to such a chancre, it will often happen that no true suppuration is produced from its surface, but that it is only covered with loosened epithelial scales—a sort of detritus, mixed with the muco-purulent discharge from adjoining parts. This matter will generally produce no effect. But when an excavation is formed on the indurated knot, giving the appearance of a slightly excavated ulcer, the matter carefully collected from this will prove inoculable.

Even mucous tubercles, a decided constitutional symptom, will sometimes, when irritated so as to suppurate freely, produce the characteristic pustule by inoculation. This effect, which I had observed several times in mucous tubercles, when irritated by the patient walking about with them, has been produced artificially by my friend, Dr. Köbner of Breslau, by cutting out a part of them with a pair of scissors, and thus producing suppuration.

The conclusion which I draw from these facts is, that the inoculability of the chancre, the infecting as well as the non-infecting, depends in a great measure on the state of suppuration going on in the ulcer.

A few of my experiments have been followed by a result which to me was at first rather surprising; and, as I lay a great weight upon them, I will relate one of them with all circumstances.

A young man, 26 years of age, entered the hospital in Christiania on January 5th, 1863, with a chancre between the glans and prepuce. There was a large cartilaginous induration a little to the right of the middle line, almost of the size and shape of an almond, and on this an excoriation, with small depressed patches filled with some detritus of organic cells of whitish colour. In both groins, and most distinctly in the left, the glands were swollen and hard. He had got the infection five weeks before his admission; and he had not remarked the chancre for more than a week, when he observed it as a small excoriated spot.

On January 9th, three inoculations were made with the scanty matter which could be scraped off the sore, apparently without any result. Two days afterwards, the inoculations were repeated; and so on every second day for a fortnight. Apparently, no result at all was produced by these inoculations; the small crust of blood following the punctures fell off; and there was nothing to be seen which indicated anything going on.

On January 25th, still no effect appearing, powder of savine was applied to the chancre. The following day it suppurated freely; but still no effect was produced by inoculations. At last, two days afterwards, on January 27th, three inoculations were made with the now abundant secretion from the chancre; and the result was, on the 29th, the formation of well developed characteristic pustules.

On the same day, there began to appear in some of the places where the first inoculations were made, on January 9th and following days, small red papules, slightly depressed in the centre, and flat. These papules increased gradually in size on the following days, and were followed by some new ones; so that, at last, on every spot where the apparently unsuccessful inoculations had been made, a papule presented itself. There was a regular decrease in size from the first which appeared after the first made inoculations to the last made. On February 3rd, the first had gained a diameter of a quarter of an inch. They were slightly elevated; had put on thin crusts; and were surrounded by a red inflammatory halo. Their colour was a dark, livid red; and they had, in fact, all the appearance of the typical pseudo-chancre except the induration, which could not be distinctly felt. During the month of February, even the later and smaller of them grew to the same size and assumed the same aspect.

On January 29th, the inoculations from the chancre, which still continued to suppurate, were renewed, and produced large pustules, followed by excavated ulcers, from which a great number of secondary inoculations were made on the patient himself, and on other syphilitic persons, with a positive result. In the meantime, swelling of the glands of the neck, roseola, copper-coloured patches on the forehead, and other syphilitic symptoms, set in; and the patient was put under treatment by syphilisation, and cured in the common course of time.

One more symptom was remarked during the progress of the disease. Close to some of the papules following the inoculations, were remarked small indurated lymphatic glands, and from some of these there extended a characteristic series of knots like a rosary.

Another case, exactly similar to this, was observed almost at the same time and under similar circumstances.

In these cases, there are many things which cannot well be explained in accordance with the dualistic theory.

We have a characteristic indurated chancre, almost a typical one, which, as the event showed, was infecting. The secretion from this chancre, inoculated on the patient himself, gives rise to a symptom exactly similar to the pseudo-chancre produced in healthy persons by the inoculation of matter from a constitutional symptom. There is no pustule formed; but, after an incubation of some weeks, a papule shows itself, which gradually is developed into a large, livid, slightly secreting spot. Not one of the slight punctures of the charged lancet fails to produce this effect. What is this papule? Evidently it is not an eruption of the constitutional disease produced by an accidental irritation. This explanation, which immediately presented itself to me, cannot be maintained, when we consider that the slight local effect of the puncture had passed away in a few days, and that almost three weeks elapsed from that time till the papule appeared. Evidently, it is a local manifestation of the introduction of the syphilitic virus; it is the pseudo-chancre developed on a syphilitic organism. Though this explanation is not in accordance with any theory, it is the only possible one; and theories must yield to facts. It may be

possible, that such an effect will not be produced in a person who already shows constitutional symptoms; in both these cases, the inoculation was made three or four weeks before that time. Still the fact is remarkable enough; and will perhaps tend to efface the old opinion, that a syphilitic organism cannot be affected by any new introduction of the syphilitic virus. In this respect, the hardening and swelling of the adjacent lymphatic glands ought to be taken into consideration. This affection of the glands is generally considered as a symptom of the absorption of the virus, or, perhaps better, as a sign that the introduced virus is acting upon the organism, and that a reproduction of it takes place, which reproduction, according to the theory of Virchow, generally takes place just in these diseased glands.

But now this same typical indurated and infecting chancre, which during three weeks only yielded the above described symptom, when it was inoculated, and failed to produce the pustule, behaved in another way after it was irritated and suppuration had set in. The matter now formed produced large pustules, whose matter was re-inoculable and formed deep ulcers. In reality, it was now, according to the dualistic theory, a mixed chancre. But the mixture had not been produced by a new infection with the secretion of a soft chancre (the patients had not quitted the hospital for a moment since they were admitted); it was simply produced by the irritating action of the powdered savine. This is, after all, the solution of the problem of the mixed chancre: *every infecting chancre which, from one cause or another, suppurates freely is a "chancre mixte"*; and generally it can be produced at will without the aid of a soft chancre. And this, too, is the solution of the question about the duality of virus.

But it remains to explain, what this artificial pustule and ulcer, which is produced by inoculation from an infecting chancre, really is. Evidently, it has all the characters of a soft chancre; and it is not possible, by its aspect alone, to distinguish it from the pustule and ulcer arising from the inoculation of a non-infecting chancre. Moreover, it is re-inoculable just like this. But what would the effect be, if it were inoculated on a healthy person? Would it again assume its infecting properties, or would it produce a non-infecting ulcer? As yet, all the experiments of which I have spoken were made on persons who already laboured under infecting chancres or showed symptoms of constitutional syphilis; and as I did not think myself justified in operating upon healthy persons, I could give no answer to this question, until by chance some cases came under my observation in which the said inoculation had been made.

Three young girls who were in the hospital, out of a "lark", inoculated themselves with the matter from these artificial chancres, which had been produced from infecting sores. One of these girls had, some years ago, laboured under constitutional syphilis, and had been treated by syphilisation. In her, the inoculation produced only a small pustule, which dried up without leaving an ulcer. Another had never had syphilis, and was under treatment for eczema of the hands and forearms. She inoculated herself on eighteen different spots, and thus produced eighteen chancres. To try their nature, I re-inoculated the matter from these, and produced twelve more; so that she in all had thirty chancres. She was kept in the hospital for about six months without any anti-syphilitic treatment; but no distinct symptom of constitutional disease could be observed.

The third person was a young girl who was under treatment for gonorrhœa, and who never had had any venereal disease before. She inoculated herself in the epigastric region with only one puncture. This

produced a large chancre, which was re-inoculable, as was proved on other subjects. It grew to a diameter of more than half an inch, and produced some swelling and inflammatory redness. A new, but smaller, chancre formed itself in the neighbourhood, probably by spontaneous inoculation from the abundant secretion of the first ulcer. One of the axillary glands swelled and became painful; but the inflammation was resolved without suppurating. The chancres were only treated by water-dressing, and healed up in about three months. No constitutional symptom was observed during her stay in the hospital, or for one year and a-half afterwards, during which time she was frequently examined by myself; but, at that time, she contracted in a natural way a new chancre on the genitals, which proved infecting, and produced roseola and other constitutional symptoms.

This case concludes, in my opinion, the series of facts which prove the common origin of the infecting and non-infecting sore. It is, indeed, the missing link to complete my deductions.

We know now, that an infecting chancre, and even a mucous tubercle under certain circumstances, can produce a soft, non-infecting ulcer, which, after this, must be considered as a local symptom arising from true syphilitic poison. But there still remain questions enough unsolved, with regard to the nature of the syphilitic poison, and especially concerning the non-infecting chancre. Will this, as commonly asserted, always be propagated only as a local symptom? or can it re-assume the lost property of infecting the system? We know, as yet, very little about that. Some few circumstances seem to point at the possibility of this process.

In the numerous methodic inoculations made during the process of syphilisation, as it for many years has been practised in Christiania, it has been remarked that the artificial ulcers produce almost the same effect of rendering the organism refractory to local reaction against the virus and of curing the disease, whether they have been derived from infecting or from non-infecting chancres. Moreover, the indurated swelling of the lymphatic glands, to which I have already alluded, is a very common symptom following these inoculations, and seems to prove that the virus really is absorbed or affects the organism. But further experiments will probably throw more light on this question.

ALCOHOLIC SPIRITS. The revenue for the last year from home-made spirits, £10,176,731, shows an increase of £484,216, and the number of gallons consumed as beverage in the United Kingdom, 20,369,844, an increase of 946,398. Those who take alarm at an increased sale of intoxicating liquors must remember that, notwithstanding the increase of population, the quantity consumed is now very considerably less than it was some years ago before the duties were raised. The consumption in 1852 was nine-tenths of a gallon per head of population, but the present consumption is little more than six-tenths of a gallon per head, and yet there is an increase of nearly £4,000,000 in the revenue. Of wine the consumption has risen in the same period from '23 of a gallon per head to '38, and of beer from '6 of a barrel to '7. These facts show the tendency towards the substitution of milder stimulants for ardent spirits. Comparing still the years 1852 and 1864, the consumption of beer in England will be found to have increased nearly 12 per cent.—viz., from '85 of a barrel per head to '95; in Scotland, 60 per cent.—viz., from '20 of a barrel to '32; in Ireland, 122 per cent.—viz., from '09 of a barrel to '20.

Original Communications.

NOTES ON CHOLERA.

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[Read at the Annual Meeting of the South Midland Branch, 1859.]

SINCE the last general epidemic of cholera in this country, it has often struck me that the subject has attracted very little attention in our medical literature, and in the transactions of the different Medical Societies. After the epidemic of 1849, the subject was very freely discussed, and various theories of the origin, the nature, and the propagation of the disease were advanced, and different and sometimes very opposite principles of treatment were advocated by men who had opportunities of observation. In the early part of the year 1854, the valuable Report of the Cholera Committee of the College of Physicians, drawn up by Dr. Baly and Dr. Gull, was published; and it is certainly the most complete collection of facts observed in previous epidemics, and of conclusions deducible from those facts, which we at present possess. The writers since that date, though comparatively few in number, have for the most part contented themselves with recording facts and observations, instead of enunciating theories and controverting or defending opinions. Some advantage has already resulted from this; and, although the Report on Treatment by the Medical Council of the Board of Health disappoints our expectations, and has not added very much to our knowledge of that important part of the subject, still the valuable series of facts collected by Dr. Snow on the influence of pure or impure water on the spread of the disease, by Dr. William Budd on the infectious nature of the disease and its propagation by means of the alvine discharges, and the valuable clinical observations by Dr. Lindsay at the Edinburgh Cholera Hospital, are certainly very important contributions to a true knowledge of the disease. The profession now seem tacitly agreed that it is only by a careful and dispassionate record of facts and observations in various localities, and among different classes of people, that a more correct knowledge of the disease and of its treatment is to be obtained. Actuated by these feelings, I have been induced to offer my humble contribution to the treasury, in the hope that, though its intrinsic value may be small, it will not be absolutely worthless.

During the autumn of 1854, when cholera prevailed very generally in this kingdom, it visited for the first time the small rural town of Towcester, and with great severity. Out of 2,700 inhabitants, there were about 120 cases of cholera, and probably nearly 600 cases of diarrhoea. No fewer than 106 cases of cholera, and nearly 400 cases of diarrhoea, simple or choleraic, were under my charge, and were treated by myself and my assistants; and I now propose to call your attention to the more important facts which presented themselves to our notice, classing my observations under three heads:

1. The localities in which the epidemic prevailed;
2. The nature and sources of infection;
3. The treatment.

1. It will be necessary to premise a brief description of the town. It consists of one main street nearly a mile long; a second street branching from it; and a number of alleys and courts, principally connected with the main street, and at right angles with it. A small river runs along the whole of the eastern side of the town, at a distance varying from