fully performed in a cottage, and the patient, who was unwilling to go away from her home to a hospital, was able to end her days among her own people.

One hears and reads much about the abuse of hospitals by those who can well afford to pay, but part of the blame for this lies at the doors of those practitioners who are too ready to shirk a little responsibility. Many of the better class poor prefer to stay at home if possible, and wherever the services of a good trained nurse are obtainable during the critical portion of the after-treatment, much can be done at home, and it is better for the position of the profession that it should be so done, rather than that people who can quite afford to pay a moderate fee should be obliged to resort to a hospital originally intended only for those in need of relief and unable to pay for it. And this brings me to what I alluded to as the "moral" of my tale—namely, that a partial solution of the problem of hospital abuse lies in the provision of facilities for the better nursing of the poor in their own homes. It is seldom necessary for the nurse to reside in the house; in an artisan's cottage there would not often be room; and operations requiring constant attendance afterwards had better be done in a hospital; but there remains a large class of cases where all that is required is for the nurse to exercise such general supervision as can be given by one or two visits during the day. Under aseptic or antiseptic conditions frequent dressings are rarely needed, and in my experience the poor are better at carrying out orders than the well-to-do, provided that the orders are given to them simply and in a form which will appeal to their common sense.

ON THE TREATMENT OF ACNE, FURUNCULOSIS, AND SYCOSIS BY THERAPEUTIC INOCULATIONS OF STAPHYLOCOCCUS VACCINE.

By A. E. WRIGHT, M.D.,

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C'a été une chose curieuse que la faillite des antiseptiques dans le traitement des maladies dermatologiques parasitaires. On fondait sur eux des espérances colossales, ils n'ont presque rien donné.—SABOURAUD.

THREE and a-half years ago I was confronted with the following situation: I was consulted by a patient, 40 years of age, who was a prey to chronic staphylococcus invasions, and had for seven years suffered from severe and constantly recurring furunculosis, complicated by sycosis, eczema barbae, styes in the eyes, and eczema tarsi. The boils, which occurred all over the body, occurred in two varieties—small superficial boils seated generally in the skin of the neck and face, and larger deep-seated boils occurring in the subcutaneous tissue of every region of the body, more particularly about the nates and thighs. His history was as follows:

Seven years previously, when engaged in clearing out a tracheotomy tube which had been removed from a patient who had been operated upon for acute laryngitis, he accidentally inoculated himself in the forefinger with some of the septic material, and in spite of three deep incisions made successively into the finger and palm of the hand, the infection spread upwards to the axilla, giving origin there to a bubo, and thence onwards into the blood stream, setting up high fever and septic peritonitis. The susceptibility to staphylococcus invasion had manifested itself immediately after the septic attack.

Immediately before the date at which the patient consulted me I had been engaged in following out the changes which are produced in the blood after the inoculation of antityphoid vaccine. I had ascertained in the course of that inquiry that the inoculation of a bacterial vaccine is followed first by a negative phase of diminished bacterial power, corresponding no doubt to the period of application of the vaccinal stimulus; secondly, by a positive phase of greatly increased bactericidal power, that is, a period of active response; and lastly, after the remission of the stimulus, by a comparatively durable period of increased resistance. I had further determined that the negative phase effect is directly dependent with respect to duration and intensity upon the dose of the vaccine, such negative phase being of only short duration when the dose of the vaccine inoculated is small and where the constitutional symptoms produced are slight. Reflecting upon these facts it occurred to me to break through conventional restrictions, and to exploit bacterial inocu-

lations, not alone for the purpose of prophylaxis but also therapeutically, in the case of patients suffering from localized bacterial invasions. Giving effect to these considerations, I proceeded in a tentative manner—testing in each case the effect produced upon the blood by each separate inoculation—to experiment on the possibilities of applying inoculation of a staphylococcus vaccine in the treatment of furunculosis, sycosis, and acne. I published my first results obtained on a series of 6 cases in the *Lancet* for March 29th, 1902. I set forth in the paper in question in detail the method employed for the preparation of the vaccine and the course of the reaction of immunity as indicated by the phagocytic reaction of the blood before and after inoculation. It emerged very clearly that we have, in the case of the inoculation of staphylococcus vaccine, to deal with a precisely similar sequence of negative and a positive phase as in the case of antityphoid inoculation; and further, that, as in the case of antityphoid inoculation, the duration of the negative phase varies with the quantum of the vaccine inoculated; lastly, that the attainment of the desired clinical result depends on the cumulation of the effects of a series of properly interspaced inoculations. The clinical results achieved in the 6 cases here in question were very full of promise. The cases that were treated were, first, the case of severe and multiform staphylococcus invasion just described; secondly, a case of very severe sycosis, which had lasted for a period of years, and which had been intractable to all treatment; thirdly, a case of furunculosis in an old lady which had followed upon a surgical operation; fourthly, a case of acute furunculosis in a medical student; fifthly, a case of mild sycosis; and, lastly, a case of irritable furuncular pimples on the back of the neck.

I have since the date of the publication of the paper in question treated by the method of inoculation a further series of cases of staphylococcus invasion. These cases include: One case of severe generalized staphylococcus invasion characterized by boils, paronychia, and severe acne; three cases of severe and long-continued sycosis barbae, which had proved intractable to treatment by antiseptics; a further case of sycosis barbae, which had been treated by epilation for many years; six cases of moderate furunculosis; and seven cases of severe and very chronic acne. In nearly all these cases I have plotted out in the form of a curve the change produced by inoculation in the phagocytic power of the blood.

The following are brief particulars of some of the cases:

CASE VII.

The patient is a medical man, the curator of a pathological museum. He suffered more or less continuously for years from boils in all parts of the body, from severe facial acne, and from paronychia. We have here evidence of a susceptibility to every form of staphylococcus invasion. In April, 1903, after removal of four finger-nails for paronychia, he applied to me with a view to subjecting himself to staphylococcus inoculations. At the time the patient was suffering also from "a large crop of boils upon his neck." He writes, "after the first inoculation, these quickly aborted, and I remained in very good health until August, when a large furuncle formed in my right buttock." This furuncle aborted after undertaking a second inoculation. The patient reports (January, 1904) "that the facial acne has been considerably better since the inoculation, but I am," adds he "by no means cured, as I had another furuncle in the loin a few days ago, but I must say that I have had great benefit from the inoculations." Owing to the fact that the patient was treated in the provinces, no data are here available with regard to the condition of the blood before and after inoculation.

CASE VIII.

Patient, a labourer, 40 years of age, the subject of sycosis, gives the following history: He suffered as a child from severe pustular eczema and from deep-seated suppuration behind the ear, which continued for years and has left very deep scars. He has also suffered from time to time from boils and from a discharge from the ears. We have here probable evidence of a lifelong susceptibility to staphylococcus invasions.

Five months ago his head became very scurfy, and the inflammatory affection passed down from the head to the parotid region, and finally to the beard and to the whole hairy surface of the face and chin. The patient now presented himself for treatment as an out-patient in the Skin Department of St. Mary's Hospital, and was treated by the x rays and by antiseptics for two months without any improvement. It was now determined to try the effect of staphylococcus inhalations.

Condition of the Patient when the First Inoculation was Undertaken.

November 2nd, 1903. The patient was suffering from very aggravated pustular sycosis, each hair of the beard being surrounded by pus, while there was considerable induration and furuncular inflammation below the angle of the jaw of the whole anterior surface of the front of the neck. The patient's phagocytic index, taking unity as representing the phagocytic index of the normal blood, was 0.48. The patient was inoculated with a quantum of sterilized staphylococcus culture which contained 2,500 millions staphylococci.

November 9th. Sycosis is astonishingly improved. The general health

of the patient is also much better, and the pain has entirely disappeared. The phagocytic estimation miscarried. The patient was inoculated with a quantum of sterilized staphylococcus culture containing 5,000 millions of staphylococci. Cultures obtained from the remaining pustules yielded pure cultivations of the staphylococcus aureus.

November 16th. Improvement has been continuous, there being now very few pustules. Acute weeping eczema has, however, supervened over the whole region of the head. The patient was treated for this condition by Dr. Graham Little by an application of carbolic oil. Phagocytic index, 1.21.

November 19th. Improvement still continuous, so far as the pustulation of the beard is concerned. The patient still suffers from weeping eczema over the whole region of the scalp. Lotion plumbi was substituted for the carbolic oil. Phagocytic index, 1.13. The patient was reinoculated with a quantum of sterilized culture which was derived from his own staphylococcus, and the quantum inoculated corresponding to 5,000 millions staphylococci.

November 26th. Pustules on the face, head and arms, had now completely disappeared and the eczematous condition is nearly well, but a good deal of redness persists about the skin and cheeks and the epidermis is everywhere scaling off. Phagocytic index, 2.1.

November 30th. A few trifling pustules are still to be seen on the face, but much less general congestion. Phagocytic index, 1.92.

December 8th. The patient is now almost quite well with the exception of a few superficial pustules. Phagocytic index, 2.7. The patient was inoculated with a quantum of vaccine made from his own staphylococcus, containing 7,500 millions of staphylococci.

December 14th. The patient is practically well. Phagocytic index, 0.92.

December 17th. The patient is about to resume work. Phagocytic index, 1.35.

Subsequent History.—The patient, who was all but completely cured in December, relapsed as a consequence of alcoholic excesses at Christmas. He is now, after a further series of inoculations, again practically well.

CASE IX.

The following case was inoculated and examined by my friend, Captain Stewart R. Douglas, I.M.S., in the Royal Victoria Hospital, Netley. The patient, Private C., was affected with sycosis of the beard. Two years ago, when on active service in South Africa, a crop of small pimples developed on his chin and spread over the whole surface of his face and jaw. The patient has been in hospital under treatment for seventeen months, but his condition has undergone only temporary improvement.

May 15th, 1903. Phagocytic index, 0.8.

May 23rd. Phagocytic index, 0.7. Inoculated with a sterilized staphylococcus culture derived from his beard. The quantum inoculated corresponded to 2,500 millions staphylococci.

May 25th. Phagocytic index, 1.1.

May 27th. Phagocytic index, 1.2.

May 28th. Phagocytic index, 1.2. Reinoculated with a quantum of the same vaccine containing 5,000 millions of staphylococci.

May 29th. Phagocytic index, 0.64.

June 2nd. Phagocytic index, 2.6.

June 3rd. Phagocytic index, 1.9.

June 4th. Phagocytic index, 1.85.

June 6th. Phagocytic index, 1.2.

June 7th. Phagocytic index, 1.5.

June 9th. Phagocytic index, 1.2.

After the first inoculation, and contemporaneously with the rise in the phagocytic curve, the number of the pustules was considerably diminished. After the second inoculation the patient was practically well. Captain Douglas's further observations were broken off by his departure from Netley.

CASE X.

The patient, a medical student from a Northern university, had been for years the victim of severe sycosis complicated by abscesses in the parotid region. He had been treated in a very systematic manner by epilation, and there was no longer any active sycosis in progress. There remained, however, considerable congestion and induration in portions of the previously affected area.

Phagocytic index, 0.73.

The patient was inoculated with a quantum of staphylococcus vaccine containing 2,500 millions staphylococci.

June 3rd, 1903. The symptoms after inoculation have been very slight. Phagocytic index, 2.25.

June 4th. Phagocytic index, 1.2.

June 5th. The patient was reinoculated with a quantum of vaccine corresponding to 5,000 millions staphylococci.

June 6th. Patient has considerable reaction and local pain.

Phagocytic index, 0.57.

June 12th. Phagocytic index, 0.79.

June 15th. Phagocytic index, 1.2.

June 17th. Phagocytic index, 1.1.

Reinoculated with 2,500 millions staphylococci.

June 20th. Phagocytic index, 0.8.

June 30th. Patient expresses himself as convinced that his condition is much improved.

Phagocytic index, 1.06.

July 3rd. Reinoculated with 5,000 millions of staphylococci derived from the culture which was obtained before the first inoculation.

July 6th. Patient is still suffering from considerable constitutional disturbance.

Phagocytic index, 0.34.

July 8th. The constitutional disturbance has passed off. Phagocytic index, 1.75. Treatment suspended, the congestion and induration having practically disappeared.

January 4th, 1904. Patient presented himself, with a history of some recurrence of his facial trouble, from which he had been free for five months. After two further inoculations with a vaccine prepared from the staphylococcus isolated from his beard six months ago the inflammatory trouble again completely subsided.

CASE XI.

June 12th, 1903. The patient, a medical man, presented himself for treatment with the following history. He suffered from the first attack of boils in June, 1897, after exhausting outdoor work in connexion with midwifery. His attack lasted for about six weeks, and a series of about a dozen boils developed. During the next eighteen months he suffered from several attacks of boils, but the details of these attacks had faded from his memory. At the end of 1900 and spring of 1901 he suffered from a number of recurrent attacks of furunculosis, several of these lasting well over a month.

In 1902, in February, he suffered from a very aggravated boil, and in 1903 from two or three bad attacks. Between June 2nd and 12th, the day on which the patient presented himself for treatment, nine boils had appeared in succession on his neck.

June 12th. Phagocytic index, 0.87.

The patient was inoculated with a quantum of sterilized culture containing 500 millions staphylococci.

June 13th. Phagocytic index, 0.73.

June 15th. Phagocytic index, 0.9.

June 18th. Patient after wearing a collar for the first time on June 17th developed two further boils. One of these aborted.

June 20th. Phagocytic index, 1.02.

The patient was reinoculated with 750 millions staphylococci.

June 24th. Succeeded in wearing a collar for a few hours in the evening.

June 25th. Developed a small boil which cleared up on the 28th.

June 27th. Phagocytic index, 1.2.

June 28th. A spot on the right eyebrow which did not suppurate.

July 8th. Phagocytic index, 1.1.

Patient was reinoculated with a vaccine made from a staphylococcus obtained from his boil. The constitutional reaction which resulted was somewhat more severe than on previous occasions.

July 3rd. Phagocytic index, 1.3.

Subsequent History.—Patient remained perfectly free from boils for over two months.

In October, after three weeks of sleeplessness, patient developed a small boil behind angle of jaw and styte in the eye.

In January, 1904, a small pustule appeared on the neck; with these exceptions patient has had no recurrence of his trouble. He expresses himself as convinced that his period of insomnia would, except for the inoculation, have been followed by an aggravated attack of boils.

CASE XII.

The patient, a medical man, aged 55, applied for treatment, having suffered from boils on the back of the neck at frequent intervals for three or four years. He has always been more or less subject to this trouble.

December 4th. Phagocytic index, 0.79. Patient was inoculated with a quantum of staphylococcus vaccine corresponding to 2,500 millions staphylococci.

December 10th. Patient was reinoculated with 1 c.cm. staphylococcus vaccine.

December 12th. A boil has begun to develop in the neck.

December 17th. The boil under the ear, which would in ordinary circumstances have suppurated and sloughed, is now aborting. Phagocytic index, 1.56.

Subsequent History.—Patient has had no recurrence of boils.

CASE XIII.

July 14th, 1903. Patient, a healthy man, aged 24, who was in training for a boat race, developed a boil on his gluteal region three weeks ago, and is now suffering from a crop of boils on the neck. Phagocytic index, 0.84. Patient was inoculated with a quantum of vaccine corresponding to 2,500 millions staphylococci.

July 17th. Boils have improved. Phagocytic index, 0.88. Patient was reinoculated with 2,000 millions staphylococci.

July 20th. Boils are nearly well. Phagocytic index, 1.3.

July 25th. Phagocytic index, 1.9.

July 31st. Phagocytic index, 1.95. Patient soon afterwards relapsed and did not come up for further treatment.

CASE XIV.

Patient, a professional man, aged 32, presented himself for treatment on November 25th, 1903, having suffered almost without interruption since last May with painful boils on the nates which in each case suppurated. The patient gives a history of sycosis ten years ago.

November 25th. Phagocytic index, 0.87. Inoculated with 2,500 millions staphylococci.

December 4th. Patient has developed another small boil in the gluteal region. Phagocytic index, 0.91. Patient reinoculated with 5,000 millions staphylococci.

December 17th. The boil referred to above has aborted without supuration. Phagocytic index, 0.94.

Subsequent History.—Patient remained free from his trouble for three and a-half months. He then developed a boil in the neck, and was reinoculated with 2,500 millions staphylococci.

CASE XV.

Patient, a professional man who has been invalided home from the East for general debility and boils, presented himself for treatment with a boil in each axilla.

October 8th, 1903. Phagocytic index, 0.49. The patient was inoculated with 2,500 millions staphylococci.

October 15th. Patient is much improved in health. The boils in the axilla have aborted without suppuration. He was reinoculated with 5,000 millions staphylococci.

November 1st. Phagocytic index, 0.95.

Subsequent History.—Patient is in good health, and has had no further boils.

CASE XVI.

Patient, a medical student, aged 24, with a long history of acne, boils, and suppuration after an operation. Boils have occurred in every region of the body; they are at present quiescent. The face is a mass of scars from old acne. There is at present, in comparison with what there has been, a trifling amount of active mischief.

December 1st, 1903. Phagocytic index, 0.82. Inoculated with a quantum of vaccine corresponding to 1,000 millions staphylococci.

December 8th. Patient reports himself much better. Phagocytic index, 1.7. Reinoculated with 5,000 millions staphylococci.

December 18th. Patient's appearance has improved in a wonderful manner, every trace of pustulation having disappeared.

April 25th. Patient has, as a result of working for an examination, begun to relapse. He was reinoculated with 2,500 millions staphylococci.

CASE XVIII.

Patient, 25 years of age, is engaged in the City. Has been the victim of pimply acne for many years. At present there are very few indications of suppuration. Phagocytic index, 0.54. Inoculated with 2,500 millions staphylococci.

December 2nd, 1903. Patient's condition seems to be a little ameliorated, patient himself being uncertain whether this is to be attributed to the inoculation or to an ordinary remission of his trouble. Phagocytic index, 1.0. Reinoculated with 5,000 millions staphylococci.

December 11th. No great change. Face appears somewhat clearer. Phagocytic index, 2.1.

Subsequent History.—Patient presented himself two months after with an almost perfectly clear complexion. He expressed himself as satisfied of the efficacy of the inoculations.

CASES XVII, XVIII, XIX, XX.—These were all cases of aggravated and very chronic acne, affecting respectively a young medical man, a young labourer, a spinster lady of 45, and a married lady of 35. The first two cases were characterized by marked pustulation and extensive scarring over the face, the upper part of the chest, and the upper half of the back. In the third case the chief feature of the condition was the reddening and development of indolent pimples over the region of the nose and chin. The fourth case was characterized by the development of marked induration round the papules, in particular upon the chin. The pimples had for years been kept under restraint only by eliminating all saccharine elements and fruit from the diet. In each of these cases very great improvement, amounting in three cases to a practical cure, was effected by a series of three injections of the staphylococcus vaccine.

It may be noted that in none of the above cases was any antiseptic treatment combined with the inoculations. Further, in no case were any restrictions imposed in the matter of diet.

CONCLUSIONS.

It is, I think, satisfactorily established by the foregoing cases that chronic staphylococcus invasions, and in particular furunculosis, sycosis, and acne, can be treated in a very effective manner by inoculations of a staphylococcus vaccine. I have elsewhere¹ called attention to the broad principles of the therapeutic inoculation of bacterial vaccine—the method which is here in question—and to its wide sphere of application. It will therefore here suffice to call to mind that we do not in the case of these inoculations supply to the patient protective substances produced in the organism of an animal vicariously inoculated, but we induce the chemical machinery of the patient to elaborate by its own efforts the protective secretion which is required for the destruction of the invading bacteria. The elaboration of this protective secretion proceeds in accordance with the general law that a vaccine introduced into the organism will, given that it is introduced in appropriate doses and at proper intervals, call forth a production of the specific bacteriotropic substances which are required for the destruction of the bacteria against which protection is desired. To comply with the conditions just specified we must employ, as was done in the cases above reported, a vaccine of standardized strength. We must further, for the achievement of the best results, measure, before we proceed to reinoculation, the effect produced in each case upon the patient's blood by the previous inoculation. Lastly, it is advisable in obstinate cases to resort to a vaccine made with the particular strain of micro-organism which has acclimatized itself to grow in the patient's organism. The scientific deductions which emerge from these observations are reserved for detailed discussion

in another place. The reader will, however, note on reading over the cases that clinical improvement invariably went hand in hand with improvement in the phagocytic power, and that the negative phase which everywhere supervenes upon inoculation revealed itself to blood examination in the form of diminution of the phagocytic power and in some cases to clinical observation in the development of fresh pimples and boils. This transient and, from the clinical point of view, insignificant aggravation of the symptoms is full of instruction, inasmuch as it is indicative of the possibility of aggravating the patient's condition by the employment of excessive and too frequently repeated doses of vaccine.

REFERENCE.

¹ On Therapeutic Inoculations of Bacterial Vaccine, BRITISH MEDICAL JOURNAL, May 9th, 1903.

MEMORANDA:

MEDICAL, SURGICAL, OBSTETRICAL, THERAPEUTICAL, PATHOLOGICAL, Etc.

CASE OF APPENDICITIS COMPLICATED BY THE PRESENCE OF AN OVARIAN CYST.*

A. M., aged 23, an attendant at a refreshment bar, first complained of pain in the stomach on July 7th, 1903. On July 8th she went to work, but looked so ill that she was sent back and remained in bed. I first saw her on July 9th; she was in bed, with a temperature of 102° F., the pulse was 140, and there was acute tenderness over the appendix region, dullness on percussion, which extended across the median line and almost up to the umbilicus.

On admission into the Royal United Hospital all the acute tenderness seemed to have gone from the right inguinal region and lower part of the abdomen, and the abdomen, although not moving with respiration, could be palpated without discomfort. Fluctuation could be made out over the area of dullness. On rectal examination a fluctuating tumour was felt bulging into Douglas's pouch; the pulse was 160, and the temperature 102.4°. She was not operated on at once because it was felt that all this dullness and fluctuation could not be due to such a recent attack of appendicitis.

On July 10th the abdomen was more rigid and the tenderness and pain had returned; the pulse and temperature were still high. I opened the peritoneum in the median line. Some free turbid fluid escaped and an ovarian tumour was seen. After evacuating the cyst, as it was being drawn out a quantity of foul-smelling pus escaped, and it was seen that the cyst had formed one wall of a fowl appendicular abscess. After the removal of the cyst an incision was made over the appendix, the muscles being divided and the appendix removed. The abdominal cavity was freely washed out and carefully dried. Drainage tubes were placed in Douglas's pouch and into the appendix region, and the wounds were sewn up in several layers and 2½ pints of normal saline introduced into the veins of the right arm.

The drainage tubes were swabbed out every three or four hours with gauze; a large amount escaped from the middle tube, not much from the side. The patient slowly but steadily improved; the pulse dropped to 84 by July 17th and the temperature to normal by July 19th. She remained in bed till September to allow of consolidation and complete healing.

The diagnosis in this case was not easy, but I record it chiefly because it affords much encouragement to hope for the best even in an apparently desperate case of fouled peritoneum.

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SPONTANEOUS RUPTURE OF THE SPLEEN.

In view of its medico-legal importance I give here details of a case of spontaneous rupture of the spleen, of which occur, hence only three cases are, as far as I can discover, on record. They are given in Lyon's *Medical Jurisprudence* (third edition) by Lieutenant-Colonel Waddell, I.M.S. The case I am about to record occurred in the Chumbi Valley, Thibet, early in February. The details are as follows:

Purba Nowgali, a corporal-driver in a Government yak corps, and a Nepalese by nationality, had been in Chumbi about three weeks. He was employed at his ordinary duties up to

* Read before the Bath and Bristol Branch of the British Medical Association.