worse than useless. Where the septic process has invaded the ovarian vein—and this is evidently the most common course—there seems to be no reason why the affected section of the vessel should not be removed during the operation, if this were done by the abdominal method. In a case so far advanced, however, the danger would be much greater of septic deposit having already occurred in the organs.

Two facts may be pointed out. Owing to the comparatively protracted nature of many of the cases, time is not wanting for observation and decision as to action; and in the earlier stages the general condition of the patients is not such as to forbid operation.

The whole question is doubtless a very difficult one, and the outlook, perhaps at the best, not very hopeful. But in dealing with conditions, which if left to run their course must inevitably prove fatal, we are surely justified in seizing almost any chance of cure.

A CASE OF PUERPERAL SEPTICÆMIA,

IN WHICH A FAVOURABLE RESULT WAS OBTAINED FROM ONE INJECTION OF ANTISTREPTOCOCCUS SERUM.

By H. W. WEBBER, M.S.LOND.,

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Mrs. H., aged 30, was seen by me on December 11th, 1899. She had been attended by a midwife in her confinement on December 4th, and on December 6th the midwife left her, as everything was in her opinion quite satisfactory. I found her with a temperature of 105° F. and a pulse of 120; the secretion of milk was entirely arrested, and there was a profuse vaginal discharge of a rusty brown colour and peculiar foul pungent smell. The bowels had not been open for two days. The uterine cavity was well irrigated with a solution of carbolic acid (1 in 40), 4 grs. of quinine bisulphate ordered every four hours, and 10 grs. of colocynth and henbane pill at bedtime. A diet of milk and brandy (a drachm of the latter to each half pint of the former), and of beef-tea was ordered. In

the evening the temperature had fallen to 103°. The uterus was again irrigated.

On December 12th the temperature in the morning was 104.6°, and the amount and character of the vaginal discharge were unaltered. Irrigation was carried out as before, and a closer examination disclosed that the os uteri was badly lacerated on the left side, the edges of the tear being thickened, evidently from recent inflammation. An icebag was ordered to be constantly applied to the head. On December 13th the patient seemed a little better, the temperature was 103°, but the same brown foul discharge came from the vagina.

On December 14th at 6 A.M. I was hurriedly summoned, and found her in very bad condition; she was only partly conscious, and brownish frothy material was issuing from the mouth. Later in the day I procured 10 c.cm. of antistreptococcus serum (Burroughs, Wellcome and Co.) and injected it into the subcutaneous tissue of the anterior abdominal wall. At this time her temperature was 103°, and pulse 130. She was in a delirious condition, and resented interference; no medicine and very little nourishment was taken.

Next morning (December 15th) the temperature had fallen to 101° F, and the pulse to 100. The patient's aspect and general condition were much improved, but the most satisfactory change was found in the vaginal discharge, which had decreased in amount, had lost its foul pungent smell, was much cleaner, and, for the first time, purulent in character. Intrauterine irrigation was again carried out, and some shreddy material came away.

On December 16th the temperature at 11 A.M. was 98° F. and pulse 85; the condition of the vaginal discharge was satisfactory. The patient, however, was becoming troublesome and morose, and would take food with only the greatest difficulty. For the next two days the highest temperature was 99.6°, and one irrigation daily sufficed to keep the discharge sweet; the inflammatory condition of the os uteri had now subsided.

On December 19th the temperature rose to 102°; but this was found to depend on constipation of three days' standing, and on being relieved by calomel it fell next day to 99°.

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After this the temperature ran a normal course, and the vaginal discharge gradually lessened in amount. Her mental condition, however, did not improve, and she lost control of the bladder and rectum.

In consequence of this I sent her into the Plymouth Infirmary. I heard on January 1st from the medical officer, Dr. C. J. Cooke, that she had greatly improved in the latter respect; and on January 10th that her mental state, which had been for some days verging on melancholia, was also much better.

Note.—January 27th: I have to-day seen the patient, who is perfectly recovered, both mentally and bodily.

ON THE USE OF ANTISTREPTOCOCCUS SERUM IN PUERPERAL SEPTICÆMIA AND ERYSIPELAS.

By ALEX. J. ANDERSON, M.B., C.M. EDIN.,
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THE first of the following cases impressed me very much with the value of the antistreptococcus serum treatment. I tried the older methods for a time, and then used the serum as a last resource with excellent results.

CASE I.—PUERPERAL SEPTICÆMIA.

History.—E. R., aged 32, primipara, was admitted to Staines Workhouse Infirmary on September 20th, 1899. She had been confined a fortnight before her admission. Before, during, and after her confinement she had been in extremely unfavourable surroundings, and had not been able to have proper nursing or sufficient nourishment. She informed me her temperature had been up to 104° and 105° F. before admission in spite of treatment and the use of the intrauterine douche.

Condition on Admission.—The temperature was 100.6°, the tongue foul, the pulse very weak and fluttering and 120 to the minute. She had a good deal of diarrhœa and complained of pain in the region of the right ovary. *Per vaginam* I found the uterus very soft and friable, and a considerable amount of exudation in the region of the right ovary—in fact, she was suffering from pelvic cellulitis. There was no offensive discharge.

Treatment.—To commence with I exhibited antifebrin, but as I found her circulation could not stand it I resorted to quinine on the second day after admission. She had 10 grs. of the sulphate night and morning for five days, but as her temperature went up to 104.4° I resolved on September 27th to try the antistreptococcus serum. I would have used the serum treatment from the first had I not seen it written by the makers of the serum that "in the present state of our knowledge of the subject, it may be questioned whether the serum treatment of streptococcal infection should be continued, although some apparently encouraging results have been obtained in this country." I may say here in passing that during the first week she had a diet of 3 pints of milk, 6 ozs. of brandy, and 3 eggs per diem, with a little mutton broth, as well as soda water and ice for the sickness. The diarrhœa was checked by the use of astringents, and the circulation helped by the use of digitalis, strophanthus, and strychnine. She was doused night and morning with 1 in 2,000 corrosive sublimate. Some pus and uterine mucosa came away during the first few days.

First Injection.—On September 27th, a week after her admission and three weeks after her confinement, feeling that nothing could save her unless it was the serum, at 8.30 P.M. I injected between the scapulae 10 c.cm. of Burroughs, Wellcome, and Co.'s antistreptococcus serum. The temperature, which was falling, fell to 99.4° an hour and a half after, but three hours and a half after the injection rose to 102.2°.

Second Injection.—Next day, September 28th, I injected another 10 c.cm. at 6 P.M., when the temperature was 101.8°; in two hours it had risen to 103.8°, but was subnormal by 10 the next morning. However, the temperature had risen to 99.8° by 3.30 P.M.

Third Injection.—In the afternoon I gave her an injection to try and cut short the rise; in spite of this the temperature rose, but this time only to 101.4° two hours and a half after.

Fourth Injection.—The next day her temperature was 103.2° at 2 P.M., and I injected 10 c.cm. at 5.30 P.M. Instead of the temperature rising after this injection it fell to 99°.

Fifth Injection.—Next day at noon it was 99.4°. She was very weak; as I knew she could not stand more fever, with a great deal of misgiving I injected 10 c.cm. In six hours and a half her temperature was normal, and it remained subnormal for three days.

The makers of the serum state that 10 c.cm. should be given every twelve hours. I have seen it stated that the dose might be 10 to 30 c.cm. two or three times a day in acute cases; but in my hands I found the serum a most potent remedy, with a powerfully depressant effect on the circulation, and I dared not give more than one injection in the twenty-four hours. During the time of the injections she had no antipyretics whatever. After each injection the pulse got markedly slow, irregular, intermittent, and she complained of faintness. I relied on large doses of iron and strychnine, and the exhibition of ammonia and hypodermic injections of ether when required, I noticed after the second injection that the tongue began to clean, and the pain in the region of the right ovary to subside. By the time she had the fifth injection the tongue was clean, the pain had gone, the diarrhœa stopped,

and she seemed better in every way. After her temperature ceased to be subnormal, on October 5th it rose once to 99.8°, but under 2-grain doses of quinine every four hours it was normal in two days' time, and remained so during her convalescence. A day or two after the fifth injection, vaginal douches of 1 in 4,000 corrosive sublimate were used for a day or two, and then stopped. There was no discharge for a few days, but twelve days after the last injection there was sufficient lochia for a bacteriological examination, the report of which stated that the organisms found were streptococcus, staphylococcus, and a large bacillus. In another case I should have a bacteriological examination of the lochia made as soon as possible, as that seems to help to focus the indication for using the serum more precisely.

As to the after-effects of the serum, the skin over the scapula desquamated, and she had three or four small pustules on the back, and one developed into a good-sized carbuncle over the region of the right sacro-iliac synchondrosis. The injections were carried out with strict antiseptic precautions, and none of the pustules or carbuncle were caused by the injections. The patient was in such a desperate state; she had petechiæ here and there in the skin, and the skin of the forearm sloughed through pinching, while ether was injected hypodermically. In this case the skin was peculiarly tough to the sharpest needle, the other forearm swelled at the site of the ether injections, and remained hard for some time, but gradually yielded to treatment. The patient improved steadily, and was discharged cured, well and strong on November 18th, having been two months all but two days under treatment. I am of opinion that the effects of the serum should be watched from hour to hour, night and day, on account of its depressing effect on the circulation, which lasts for several days after all injections have been stopped. In this case I was unable to find out the cause of the septicæmia and sapræmia, whether due to measles, scarlet fever, gonorrhœa in the husband, or sewer gas; fortunately for her, whatever the cause, she only had a small dose of poison, though its effect was intensified by her weak state.

CASE II.—ERYSIPELAS.

S. L., male, aged 54, was admitted to Staines Workhouse Infirmary at 12.30 P.M. on November 9th, with a temperature of 102.1°. Next day at 2 o'clock his temperature was 103°. He had it severely on the face when he came in, then afterwards extensively over the face, head and neck, hands and arms; he was delirious off and on during the first fortnight after his admission. For the first nineteen days after his admission I treated him in the usual way, giving him quinine every four hours, and opening all abscesses, of which he had a number on the scalp and two on the hands; these formed from time to time, and were opened in turn at the earliest indication of pus. As I found in spite of treatment his temperature rose to 101° or 102° daily, I resolved on November 28th to try the antistreptococcus serum. At 2 P.M. on that day his temperature was 99.8°. At 4 o'clock I injected 10 c.cm. to try and cut short the evening rise, and the temperature, instead of rising to 102°, as on the evening before, fell slightly, and at 10 P.M. on the night of the injection was 99.8°. On November 29th, as the temperature was 100.8°, I injected at 4 P.M. 10 c.cm. of the serum, that night at 10 P.M. the temperature rose to 101°, but next day at 2 P.M. was 99.8°. At 5 P.M., 10 c.cm. of the serum was injected, the temperature fell gradually, in less than two days was normal, and the man made an uninterrupted recovery.

CASE III.—ERYSIPELAS.

W. W., male, aged 46, was admitted on November 27th with facial erysipelas, and a temperature of 100.6°. As this case appeared to me likely to be as severe as the other, I resolved to try the serum treatment at once, to see if it would shorten the attack, and turn the severe into a mild case; the serum succeeded far beyond my expectations. On the evening of his admission I injected, at 8.45 P.M., 10 c.cm., and at 6 A.M. next morning his temperature was 102°. At 2 P.M. on the day after his admission, as his temperature was 101.4°, I injected 10 c.cm. Again it gradually fell, but as it was 99.6° at 2 P.M. I injected another 10 c.cm.; the temperature fell to normal in 20 hours, but as there was a slight rise to 99.4° I injected, for the fourth time, 10 c.cm. In twelve hours the temperature was normal, and the man practically cured, and the temperature remained normal until his discharge.

In this case there was only one collection of matter in the left lower eyelid; this was opened at once, and soon healed up. What struck me was that here was a case of erysipelas with its chief incidence in the region of the left temple, eye, and side of face, much relieved in 36 hours, and practically cured in four days by this treatment; while in the other case, where the orthodox and older methods were used, I had no improvement whatever for 19 days, in spite of the very free use of the knife and antipyretics. In the second case, the convalescence was very rapid, as the man had only to suffer for a few days; in the former the man was in a dangerous state for about three weeks, ran grave risk of complications, and had a longer convalescence and felt pretty sharply the effects of all he had gone through.