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is to be taken in the morning just before the inunction. The rubbing will be carried out by a trained orderly. The part of the body where the ointment has been applied is not to be washed until the time comes to rub that particular part again. The rubbing operation is to occupy fully twenty minutes, and the body is to be rubbed in the following order: First day, arms; second day, chest; third day, back; fourth day, thighs; fifth day, legs. Then commence again as on the first day. The regions of the body rubbed are changed daily to avoid the effects of friction. The rubbing must be done slowly and pressure used. The part of the body after the inunction should look as if it had been black-leaded. As it is impossible to gauge the amount of mercury actually absorbed, the most careful watch must be kept on the condition of the patient's mouth, body-weight and urine.

This method of treating syphilis is rarely used at Rochester Row; at one time it was used extensively for cases of obstinate induration at the site of the sore, but calomel injections have superseded this method of treatment.

THREE CASES OF LIVER ABSCESS TREATED BY ASPIRATION AND INJECTION OF QUININE.

BY MAJOR C. G. SPENCER.

The following cases were treated at the Queen Alexandra Military Hospital, Millbank, during the past eighteen months:

Case 1.—An officer, aged 31, admitted on April 4th, 1907. While serving in India in October, 1906, he began to feel "out of sorts," with vague symptoms—malaise, drowsiness, and headache, but no fever. In January, 1907, after his return to England, he became worse, and on January 6th a sharp attack of dysentery developed. He was in bed for five weeks, and suffered very severe pain between the shoulders, but states that he had no fever then. On February 20th he expectorated a cupful of "anchovy-sauce-like material," and the pain then completely disappeared and he was very much better. He continued to improve until the end of March, when the pain returned in the left side, and he had fever every evening until he was admitted to Millbank.

On admission he was emaciated; there was some tenderness in the epigastrium over the left lobe of the liver, but no enlargement of the liver could be detected. There was no mucus or blood in the stools, and no amebes were found. The temperature was 99° to 100° F. every evening. The leucocytes numbered 15,000. The temperature continued to rise at night, and the leucocytosis became more marked. On April 27th, X-ray examination showed an upward enlargement of the liver, and on April 29th a deeply seated abscess near the middle line and in the upper part
of the liver was aspirated under chloroform, about 6 ounces of pus being removed. After aspiration, 4 ounces of a sterile 1 per cent. solution of quinine hydrobromate (about 15 grains of quinine) were injected into the abscess cavity through the aspirator needle. After the aspiration his temperature became and remained normal, his pain disappeared, and his general condition rapidly improved. At the end of a week he was out of bed, and he left the hospital at the end of a fortnight. Since then he has from time to time had some pain in the left side, and pain on deep inspiration, probably due to adhesions, but there has been no return of the symptoms of liver abscess.

CASE 2.—An officer, aged 45, admitted on October 7th, 1907. He had dysentery in India in May, 1907, and had a relapse on the voyage home in September. On admission he had lost 4½ stone in weight, and was pale and very weak. There was marked enlargement of the liver, with pain and tenderness, and an evening rise of temperature. Upward enlargement of the liver was well seen on X-ray examination. On October 10th, under chloroform, 14 ounces of pus were removed from the right lobe of the liver by aspiration, and about 20 grains of quinine hydrobromate in 1 per cent. solution injected. The pus removed was sterile on culture, but contained some dead rod-shaped bacilli. After the aspiration he improved steadily, the temperature at once became normal, and he lost all pain and tenderness. The liver slowly diminished in size, his general health and strength improved, his appetite became very good, and at the end of a month he left the hospital to go to the Officers' Convalescent Home at Osborne.

CASE 3.—An officer, aged 43, admitted on July 27th, 1908. In the beginning of February, 1908, in Arabia, he had an attack of dysentery lasting a week, and later a short relapse. In March he had symptoms of hepatitis, which passed off. He then returned to Europe, and on arrival at end of April he had an enlarged, tender, and painful liver, with some fever. For a time he improved, but on June 10th he became worse, and was laid up for six weeks, with irregular temperature, severe pain in the right shoulder and over the liver, and rapid, feeble pulse. There was no leucocytosis. He came to London at the end of July and was admitted to Millbank. On admission he was very pale, weak, and emaciated. The temperature was 101° F., and the pulse rapid and feeble. The liver was greatly enlarged, causing marked bulging of the lower ribs on the right side and bulging in the epigastrium, and was tender and painful. Deep dulness extended to the fourth space in the nipple line, and the lower edge of the liver could be felt 2 inches below the costal margin. The leucocytes numbered 30,000.

On July 28th, under chloroform, aspiration was performed; pus was struck an inch from the surface and 50 ounces were removed. About 40 grains of quinine hydrobromate, in sterile 1 per cent. solution, were injected. That evening he was somewhat collapsed, and had some
symptoms of an overdose of quinine—deafness and a subnormal temperature. Next day he was feeling much better, and for several days he continued to improve, the liver was markedly diminished in size, the pain had disappeared and the temperature was normal. The leucocytes decreased to 12,700. But on August 3rd an evening rise of temperature began again, and from that date the pain returned, the liver became more enlarged, and the leucocytes increased to 14,700. On August 11th, a fortnight after the first aspiration, the liver was again aspirated under local analgesia and 53 ounces of pus removed, 20 grains of quinine being injected. This relieved all the symptoms for three days, after which the pain and evening rise of temperature returned. The liver was aspirated for the third time on August 18th, a week after the second aspiration, 48 ounces of pus were withdrawn, and 20 grains of quinine injected. After this recovery was steady and complete; he gained weight rapidly, the temperature remained normal, the pulse became stronger and less rapid, his appetite became very good, and at the end of a month from the last aspiration he left the hospital for Osborne. The leucocyte count remained high—14,700.

Since then he has continued to improve, though his convalescence was interrupted by a slight attack of pleurisy on the right side at the end of September, and he has twice had passing pain in the right side and a rise in temperature as a result of exposure to cold. He now feels perfectly well and has gained several stone in weight, but as late as the middle of October a blood count still showed over 10,000 leucocytes.

Remarks.—The method of treatment followed in the above cases was that advocated by Rogers and Wilson. Owing to the high death-rate following open operation for the drainage of liver abscesses, several other methods have recently been put forward. Many years ago good results were obtained in some cases by repeated aspiration before the open operation came into general use. Aspiration and irrigation of the abscess cavity through a double cannula has been suggested and tried by Hull, with satisfactory results. Lately Rogers has devised a flexible cannula for syphon drainage of the abscess, and this has also been used with success. The mortality of the open operation is variously estimated by different observers: Megaw gives it as 60 per cent. among natives in Calcutta. Among British troops in India in 1906 and 1907 it was 48 per cent. (317 operations, 152 deaths). Sir R. H. Charles, a strong advocate of the open operation, gives the death-rate in hospital cases as 37-8 per cent.

1 British Medical Journal, June 16th, 1906, p. 1397.
2 Journal of the Royal Army Medical Corps, January, 1907, p. 40.
3 British Medical Journal, October 24th, 1908, p. 1248.
4 Indian Medical Gazette, 1905, p. 81.
5 "Army Medical Department Reports," 1906, p. 21, and 1907, p. 114.
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and in private cases 20 per cent.1 The chief cause of this high mortality, apart from the presence of more than one abscess, or extreme debility of the patient before operation, is undoubtedly infection of the abscess cavity by pyogenic organisms through the open wound. This is extremely difficult to prevent, no matter how much care is taken; the large amount of viscid discharge necessitates frequent changes of dressings, air and pus are sucked in and out of the cavity by the respiratory movements, and it is very difficult to keep the skin round the wound aseptic, especially in a hot, moist climate. The great majority of amebic abscesses are sterile when first opened, and every surgeon with Indian experience is familiar with the usual course of fatal cases—the patient does well for the first few days after the operation, then infection occurs, the temperature goes up again, and death from septic poisoning slowly but surely follows.

Any method of treatment that avoids an open wound into the abscess cavity is therefore worthy of trial, and time alone will decide which method is the best. The administration of ipecacuana, as advised by Rogers,2 may possibly prove a valuable adjuvant to purely surgical measures. In the three cases recorded above aspiration was immediately and strikingly successful in the first two, and Case 3 is of special interest on account of the large size of the abscess, the debilitated state of the patient, and the fact that after aspiration had failed twice it was completely successful on the third occasion. In all the cases the enlargement of the liver remained for some little time after aspiration, and the organ returned slowly to its normal size; in the last case the leucocytosis persisted for some time after other symptoms had disappeared, a point noted also by Rogers and Wilson. No doubt the abscess cavity cannot be entirely emptied by aspiration, and it must refill to some extent with blood and serum, so that a considerable quantity of blood, serum and pus remains and is slowly absorbed. This would account for the slow decrease in the size of the liver and for the persistence of leucocytosis.

Aspiration, with injection of quinine, has the advantage of requiring no special apparatus, and where the situation of the abscess is known it can be done under local analgesia. Methods involving the leaving of a cannula in situ are more troublesome in the after-treatment, especially if syphon drainage is to be kept up, and do not afford such complete safety from the possibility of infection of the abscess cavity.

The value of the method cannot be determined without much fuller experience, but it certainly promises well, and should be tried in every case. Even if unsuccessful it can do no harm, and in any case the patient will have had at least temporary relief and may be better able to stand the open operation. It is to be hoped that medical officers in India will give this method a fair trial and will report their results.

1 British Medical Journal, October 24th, 1908, p. 1242.
2 Ibid., p. 1249.