AN OPERATION FOR LIVER ABSCESS.

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The object of the following operation is to provide an efficient procedure for the treatment of liver abscess, without the danger and inconvenience of an open incision.

Instruments.—A cannula with a fine exploring needle brazed to its side. Both the cannula and needle should be provided with stopcocks. It will be found convenient to have several of these combined instruments in varying sizes. The instrument simply forms a two-way cannula. Two cannulas, or a cannula and an exploring needle, taken from an ordinary case, may be used in an emergency.

Operation.—The abscess is sought for in the usual way. I use an ordinary fine exploring needle, and not the trocar and cannula supplied in aspirating cases, which are usually used. I find that the simplicity and fineness of a needle more than compensate for the occasional blocking of the needle which occurs. Having found the abscess, I use the needle as a guide, and push in the two-way cannula which I have described. This is no larger than the instrument used for exploring by the majority of operators. The pus is then aspirated by connecting the cannula with an exhaust bottle, the tap of the needle being closed. Sterilised water is then injected through the needle, and aspirated through the cannula. A solution of peroxide of hydrogen, equal in quantity to one-fourth of the amount of pus withdrawn, is then injected into the cavity through the needle attached to the cannula. Whilst the solution is being injected the cannula is left open. Immediately the solution has entered the cavity the tap of the needle is closed, and the solution aspirated through the cannula. I then half fill the cavity with hydrogen peroxide, and leaving the stopcocks open, allow the solution to remain in the cavity for ten minutes; moving the patient in order that the antiseptic may come in contact with the entire surface of the abscess wall. The contents are then aspirated, and the cavity again filled with a diluted solution of hydrogen peroxide. The operation is then complete, the instrument is left in the puncture, and both the taps are left open. The strength of the solution used is a ten-volume solution of peroxide.
of hydrogen. The solution is heated to the temperature of the body before being injected.

*After-treatment.*—The patient may either be treated by continuous irrigation, or by repeated washing out of the cavity. By either of these methods the abscess cavity will be most effectively drained and disinfected, without inconvenience to the patient. The choice of method depends upon the condition of the patient, the character of the abscess, and the nursing and supervision available.

*Continuous Irrigation.*—A douche is placed above the patient's bed, and connected with the irrigating needle by a tube. A tube is attached to the cannula and carried into a basin of lotion beneath the patient's bed. When the taps of the two-way cannula are turned on, a stream of warm fluid will slowly pass through the abscess cavity. The douche is placed only a few inches above the patient, as very little pressure is required. Peroxide of hydrogen must not be used for continuous irrigation, on account of the gas generated.

*Repeated Irrigation.*—This is carried out in the manner described under operation, by injecting and aspirating an antiseptic several times during the day. In order to accommodate the length of the two-way cannula to the contraction of the cavity, the cannula is withdrawn a short distance at intervals.

*Dangers of the Operation. Bursting of the Abscess.*—This may occur if too large a quantity of fluid is injected. Blocking of the cannula when fluid is entering the cavity by the needle may also produce this result. This accident will not occur if the fluid is injected slowly by means of a douche, and care is taken that the cannula is clear. The rapid accumulation of gas, due to the liberation of oxygen, may cause danger if the solution is too strong, the cannula is blocked, or too large a quantity of peroxide has been injected. Large abscesses suspected of being near the point of bursting are unsuitable for treatment by peroxide of hydrogen. Some other non-poisonous antiseptic must be chosen. Measurement of the pus withdrawn is an absolute guide to the amount of fluid which may be injected.

*Collapse.*—If the patient is carefully watched, and the strength and temperature of the solutions injected are correct, this will not occur.

*Advantages of the Operation.*—The shock of a major operation is avoided. A general anesthetic need not be given. The patient is saved the dressing of a large discharging wound. The patient's strength is conserved. The operation being a safe and easy one,
An Operation for Liver Abscess

it will not be feared by operator or patient, but will be performed at an early stage. The danger of infection of the wound is avoided. It is well known that pus-forming bacteria or cocci are not found, as a rule, in the pus originally withdrawn; but they are almost invariably found in the wound after an incision. The wound is cleanly and efficiently drained.

The following is a brief extract of two cases successfully treated by this method, under totally different conditions.

M. L., aged 30. A native of Africa. This patient was operated upon in 1902. The patient apparently suffered from an abscess of the chronic variety; no history was obtainable. The physical signs being well marked, a needle was inserted in the eighth space, and twenty ounces of liver pus drawn off. Having at the time no two-way cannula, I used two ordinary cannulas fixed together with wire; and in the absence of peroxide of hydrogen I used a diluted solution of tincture of iodine irrigation. The cavity was washed out with this solution in the manner before described, and then washed out with sterilised water. The cannulas were left in the wound and a dressing applied. Six hours later I again filled the cavity with diluted iodine solution, and irrigated. On the following three days I repeated the irrigation treatment three times a day. On the fourth day the tubes were removed and the patient made an uninterrupted recovery. He was at work in the fields a fortnight after the operation.

Mr. E. F., aged 42. This patient was seen with Dr. Bryant in London in October, 1903. The patient had lived in Egypt for many years, and had suffered from chronic dysentery. He sought advice for continuous fever and general debility. There being no definite physical signs, an examination of his blood was made, and the presence of leucocytosis discovered. Under ether, the patient's liver was explored. I made several punctures, with negative results, but ultimately drew off an ounce and a half of liver pus through a puncture in the eighth space. This abscess was irrigated with sterilised water, and again aspirated. It was then treated with peroxide, and again washed out with water. The after-treatment consisted in the continuous irrigation with sterilised water at a temperature of 99° F. On the evening of the operation the cavity was again washed out with hydrogen peroxide. On the following evening the patient's temperature being 101° F., the liver was again explored; at the fourth puncture, which was in the nipple line immediately below the costal margin, and directed obliquely upwards, an abscess contain-
ing three ounces of pus was discovered. A second two-way cannula was introduced, and the cavity treated with peroxide solution, as in the case of the first abscess. Both the abscesses were then irrigated daily for three hours with sterilised water at a temperature of 99° F. After four days of this treatment the tubes were removed. The patient recovered fairly rapidly, being delayed somewhat by an attack of pleurisy.

Since writing the above I find that Major Rogers and Captain Wilson, I.M.S., have published a most important paper on the treatment of amebic liver abscess. Major Rogers found that the amebae in the wall of the abscess could be killed with great rapidity and certainty by quinine in weak solution. On this account he recommends that the pus shall be aspirated and quinine solution injected. Several cases have been operated upon successfully by Captain Wilson by this method. It would be impossible to over-estimate the value of Major Rogers' and Captain Wilson's work. It should revolutionise the treatment of liver abscess, and result in an enormous reduction in the mortality.

In future, I propose adopting Major Rogers' recommendation as regards the use of quinine, and I shall inject it through a two-way cannula, which will be left in the wound as long as pus continues to be washed away by the irrigating solution. The most important point in the treatment is to arrive at an early diagnosis by means of blood examination and X-rays. It is unnecessary to wait for physical signs to appear; exploration, if performed properly, is harmless. It will be noticed that Major Rogers, finding that a liver abscess usually contains no pathogenic bacteria or cocci, considers it unnecessary to drain by an open wound, as quinine will kill the amebae. On the other hand, it was my endeavour to drain and sterilise an abscess cavity, whatever the nature of its cause may have been, in a safer and more efficient manner than by an open incision. It will probably be found that deep abscesses other than liver abscesses are equally amenable to this treatment.

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1 "Two Cases of Amebic Abscess of Liver," British Medical Journal, June 16th, 1906. Major Leonard Rogers and Captain Wilson, I.M.S.