until a marked inflammatory reaction in the surrounding tissues occurred, the ulcer being protected between times by a piece of lint retained in position by strips of sticking-plaster. The bichromate was then stopped, and a dressing of boracic ointment applied until the surrounding inflammation was allayed. The ulcer then appeared to be in a healthier condition, the floor having been partly destroyed and granulations becoming evident.

The process was repeated twice, bichromate being painted on the ulcer night and morning as before, with a similar result, and being followed by the application of boracic ointment. The effect of the potassium bichromate was the production of a sloughing of the unhealthy tissue over the whole floor, which extended also under the rolled edge of the ulcer. Healthy granulation was promoted, and, after the completion of the third series of applications of the bichromate, the epithelium spread rapidly over the ulcer, which healed completely, leaving a somewhat irregularly-pitted scar.

From the beginning of the treatment till the ulcer was apparently cured occupied a period of three months. Two weeks later, however, a small part of the margin of the cicatrix began to break down. Two further repetitions of the process were sufficient to cure this, and so far no further recurrence of the condition has taken place.

REFERENCE.

¹ BRITISH MEDICAL JOURNAL, March 6th, 1909.

TWO CASES OF ASCITES DUE TO LIVER CIRRHOSIS TREATED BY OPERATION.

By G. GREY TURNER, F.R.C.S.ENG.,

HONORARY ASSISTANT SURGEON, ROYAL VICTORIA INFIRMARY,
NEWCASTLE-UPON-TYNE.

THE whole subject of the surgical treatment of ascites secondary to cirrhosis of the liver was so fully dealt with by Mr. Sinclair White in the paper with which he opened the discussion at the British Medical Association meeting at Toronto in 1906,¹ that it requires me to say that the object of this communication is merely to add two unpublished cases to the literature of the subject.

The operation of omentopexy as devised by Drummond and Morison is a valuable addition to surgery, and if it does not as yet occupy the place it deserves it is because sufficient care has not been taken in the selection of cases. It is only proper that such a means for the cure of ascites should be tried in cases widely dissimilar, for only in this way can its usefulness be extended; but, as I pointed out in a short paper read in Toronto,² it is not fair that the cases should be lumped together for statistical purposes. When the operation is reserved for uncomplicated cases of ascites due to alcoholic cirrhosis that have withstood one or two tapplings, the results are very much better than is generally supposed, and I am glad to be able to contrast a case in which the indications were such as to lead one to expect a successful result with one in which the operation was undertaken rather as a forlorn hope than with the expectation of recovery.

CASE I.—Cure of Ascites due to Alcoholic Cirrhosis: Double Radical Cure of Hernia Subsequently: Patient Alive and Well Two Years and Nine Months Later.

J. T., aged 46, a gas works labourer, was admitted to the Newcastle-upon-Tyne Royal Infirmary under the care of Dr. George Murray on September 22nd, 1906, complaining of swelling of the abdomen and ankles. The patient came of a healthy family, and had usually enjoyed excellent health in spite of the fact that he had always been a heavy beer drinker. His present illness began twelve weeks previously with swelling of the abdomen, which became so distressing that he had to be tapped four times in the eight weeks preceding admission. He suffered very much from shortness of breath, which was relieved after the tapping. The secretion of urine was very scanty, but there was no trouble with micturition. Recently he had lost flesh considerably. When 20 years of age the patient contracted gonorrhoea, but there were never any symptoms of syphilis. Twelve years previously he was operated upon for double hydrocele. Four years ago a right inguinal hernia presented itself as the result of heavy lifting, and seven months ago it gave him so much trouble that he began to wear a double truss.

On his admission the patient was found to be a big man, weighing 13 st., but looking anaemic and ill, and with a dirty tongue, though he had a good appetite. The temperature was 97.8°, and the cardio-vascular system normal, with a pulse of 80. There were some crepitations at both bases; urine was very scanty and of specific gravity 1030, but there was no albumen or

sugar. The abdomen was full of fluid, which distended the sacs of a double inguinal hernia. While in the medical wards the patient was tapped four times—namely:

September 23rd	...	...	...	447 oz.
October 6th	...	...	...	398 oz.
October 20th	...	...	...	432 oz.
November 3rd	...	...	...	394 oz.

As the condition was not improving, Dr. Murray asked me to see the case with a view to surgical interference, and I looked upon it as a very favourable one for omentopexy.

Operation.

The patient was prepared in the ordinary way, and on November 6th, 1906, I carried out the following operation:

The abdomen was opened by a median incision, 4 in. long, above the umbilicus. The subperitoneal veins were very large and numerous. An enormous quantity of fluid escaped as soon as the peritoneum was opened, and a separate small incision was at once made above the pubes for the introduction of a Keith's tube through which the fluid escaped during the remainder of the operation. The liver was found to be very small, markedly hobnail, and much fissured. The spleen was twice its normal size. The omentum was shrivelled up, so that it lay like a fringe along the transverse colon. There were numerous vascular adhesions about the liver, but none elsewhere. After emptying the abdomen of fluid with sponges the surface of the spleen and the corresponding parietal peritoneum were thoroughly scrubbed with a sponge, but no attempt was made to treat the liver in this way, for fear of disturbing the existing adhesions. The omentum was then fixed to the parietes by silkworm sutures tied over gauze dozzles. The incision was closed in layers with catgut, the Keith's tube being left in the pelvis and the abdomen carefully strapped from above downwards. Special nurses were employed to keep the tube clear of fluid, and this necessitated its being drawn every fifteen to thirty minutes for the first few days. During the seventeen days the Keith's tube was allowed to remain the daily amounts of fluid averaged 12 oz., and during the three days immediately preceding its removal the amounts were 31 oz., 29 oz., and 5 drachms respectively. At this time the glass tube was replaced by a rubber one, and as the fluid gradually lessened this was removed a week later.

After-History.

A month after the operation the man was able to leave the hospital much improved in general condition, but still with some free fluid in the abdomen. To help absorption he was given a little potassium iodide and mercury, and this he took continuously for the next five months. A fortnight after leaving the hospital the abdomen was tapped for the last time, 6 pints and 7 oz. being removed. In the middle of January, 1907, the patient was very well. He slept and ate well; the bowels were regular; there was very little fluid in the abdomen and much less swelling of the feet. A month later the man reported himself as still very well, his principal trouble being due to the distension of his hernial sacs with what fluid remained in the belly. The use of a suspender gave him some relief, but it was eventually decided to rid him of this inconvenience by operation.

Operation on Herniae.

On May 6th, 1907, both herniae were operated upon by the method of Bassini. The superficial veins over either hernial region were unusually prominent, but there was nothing else worthy of note about the operation. For two or three days after this interference the man was decidedly lethargic; there was slight jaundice and an erythematous eruption, but, to my great relief, these symptoms quietly disappeared, convalescence thereafter being uninterrupted.

After-History.

By the middle of June he was much better than he had been before the hernia operation, and in August he went back to work. In July, 1908, the patient reported himself in excellent health; he had worked continuously since starting, and had no complaint to make beyond the inconvenience caused by a cyst of the epididymis on the right side, which he wished had been cured at the same time as the hernia. When the man next reported himself, in August, 1909, he looked the picture of health and expressed himself as in better health than ever before, weighing 14 st. He was working regularly, earning £1 a week as a labourer in the gas-yard, and eating and sleeping well. Since the operation he has not taken alcohol in any form.

This, then, was a case which fulfilled the indications which an increasing experience has shown may justify us in predicting a successful outcome for the operation.

(a) It was clearly a case of alcoholic cirrhosis.
(b) There were no cardiac, renal, or pulmonary complications.

(c) The patient had withstood several tapplings. There were one or two points about the operation worthy of comment. The subcutaneous veins and the subperitoneal plexus were tremendously enlarged, and there were many vascular adhesions about the liver, but not between the omentum and the parietes. The deductions to be drawn were not quite clear. Did it mean that

Nature had put forth her best and required but a little help from the surgeon? on which hypothesis one would augur a rapid recovery with the additional aid the operation was able to give. Or did it mean that if so good a collateral circulation was not enough, the comparatively small addition given by the operation would not be likely to help? As it turned out, recovery was slow, and it evidently took Nature all her time to do what was just necessary to set about cure.

The omentum was all shrivelled up and closely tucked to the transverse colon, so that there was very little of it to attach to the parietes, but in another similar case it would be very easy to stitch the transverse colon, carrying with it the remains of the omentum, to the belly wall.

Drainage was employed and the abdomen strapped, as originally suggested by Mr. Morison. There is a tendency to dispense with drainage and to be content to tap later, simply, it appears, because of the inconvenience of the tube and the risk of septic peritonitis. I have never seen a case die from sepsis, and, to my mind, the drainage is important, for some cases have been cured by this measure alone, fluid being allowed to escape either externally or into the tissues.³ I think the case under review illustrates the importance of drainage, for the collateral circulation already established would seem to have been enough, were it a mere mechanical problem; and this is further suggested by the unusual time the fluid ran, by the fact that the man required tapping after the operation, and that fluid reaccumulated to a slight degree. It may be that only some cases require both aids to cure, but I submit that it requires further experience to show us in which cases drainage may be wisely dispensed with, or, possibly, in which it alone may succeed.⁴

As the general condition improved the patient began to be more and more troubled by his hernia, and I was confronted with the responsibility of advising him in regard to it. Those who recall Mr. Morison's earlier papers⁵ will remember that his first successful case died jaundiced and comatose after an operation for the radical cure of a ventral hernia performed two years after the omentopexy. The special danger attached to any operation after omentopexy appears to be the onset of toxæmia, which may overtake patients suffering from cirrhosis quite apart from any operative interference; but in interfering with an inguinal hernia there is the additional danger of upsetting the venous circulation by division of the superficial epigastric and other veins, which often take so large a part in establishing the collateral circulation.⁶ My patient, however, was very anxious to be rid of his additional burden, as it interfered with his wage-earning capacity, and I advised him to run the risk. The lethargy and slight jaundice which followed the operation made me very anxious, but the symptoms soon passed off, and recovery was then as smooth as in any ordinary case. About two months later the wisdom of the step I had taken was confirmed by the death of another of Mr. Morison's patients from strangulated hernia. This was M. J., No. 9 in my previous list.⁷ The patient, a butcher, aged 60, was operated on for ascites in July, 1905. In July, 1906, he was in excellent health, but had developed a right inguinal hernia, for which he wore a truss. A few months later he reported himself as having gained 5 st., making him 14 st. in weight. In July, 1907, his hernia became strangulated, but he was not seen by a surgeon until four days afterwards, when the operation, so long delayed, was followed in a few hours by death.

My patient has become a total abstainer, and it is partly to this that I attribute his very excellent health, for, so far as I know, there is no evidence that the operation can do anything to compensate for the loss of liver substance, and the patient must husband what remains lest the disease progress in spite of the new collateral circulation.

One of my patients was an old woman of 66, an inveterate whisky drinker, who would not give up her alcoholic habits, and had always a bottle of whisky in bed beside her. In spite of this she was comfortable after the operation, and, on her death three months later, I found only a small amount of free fluid, whereas, in the six months preceding the operation, she had been relieved of 6 gallons of fluid on three separate occasions. The omentum and small intestine were very well adherent to the parietes.

Sinclair White⁸ mentions two cases in which he had successfully operated for the cure of ascites, but in which the fluid and the train of symptoms associated with it returned after a few months of unchecked debauch.

The next case illustrates some very important points in connexion with this operation.

CASE II.—*Syphilitic Cirrhosis: Omentopexy: Death.*

J. J., aged 44, was admitted to the Newcastle Royal Infirmary, under Dr. W. E. Hume, on August 6th, 1908, complaining of abdominal pain and swelling of about two weeks' duration. There was a history of syphilis ten years previously, and he had also suffered from malaria and enteric, and was often troubled with diarrhoea. He admitted having been a regular beer drinker, now and then to excess. Just before admission the patient was tapped, but the fluid rapidly reaccumulated. On admission he looked fairly well, and weighed 9 st. 12 lb.; the heart, lungs, and kidneys were normal, though the excretion of urine was very much diminished. Over the front of the abdominal wall there were many enlarged veins, and especially so around the umbilicus. The abdomen contained a large quantity of free fluid, and neither the liver or spleen could be felt. A diagnosis of syphilitic cirrhosis was made, and the patient given a thorough course of mercury and iodide. The abdomen was tapped four times, on each occasion about 300 oz. being removed. In spite of treatment the patient went steadily downhill, losing weight and strength, and only ten days elapsed between the two last tapplings, while he became very lethargic, and in this state was transferred to the surgical wards.

Operation.

I operated on October 23rd, 1908, carrying out precisely the same operation as in the first case. There was a large amount of free fluid; the omentum was not rolled up but its veins were very large; the liver was small, and the spleen not much enlarged. With the exception of a few adhesions over the posterior surface of the liver there were no signs of an attempt to establish a collateral circulation, and one got the impression that everything was left to be done. The operation was completed as in the first case, and the patient stood it very well, though he never showed any signs of improvement afterwards. He became more lethargic than before, refused his food, and paid no attention to his friends. There was never more than 20 oz. of fluid from the Keith's tube, and this very much diminished as the patient got weaker. There was no pyrexia, nor did jaundice develop. Death occurred on the fifth day. At the necropsy the peritoneum was found perfectly clean; there were no new adhesions whatever; the liver was very small, and contained numbers of large scars as of old gummata, and the spleen was exceptionally fibrous.

In this case the diagnosis was interesting. When I saw the man in the medical wards, I recognized him as one of my old out-patients who had attended on account of a syphiloma of the testicle and gummatous ulceration on the outer side of the thigh, and it was acting on this knowledge that the patient was given a thorough course of iodide and mercury, but without any benefit whatever.

My experience has led me to beware of the cases in which the cirrhosis is probably due to syphilis, for none have done well, and it was this which led me to hesitate before undertaking the operation and to give a bad prognosis.

In addition to the syphilitic origin of the cirrhosis, this patient did not improve even temporarily after tapping, and when he came to the surgical wards he was in much worse condition than when I first saw him, for he had lost weight and strength, and was obviously going downhill. To interfere at this stage certainly gave the man the last chance, but as he survived nearly a week after the operation, it was probably but an incident in his fatal illness.

The question is often raised as to the stage at which this operation should be performed, and I think, in the absence of other visceral disease, that if the fluid rapidly reaccumulates the operation should not be delayed, for I was much impressed by the case of a gentleman of 46, who was relieved of an average of about 22 pints of fluid nine times in eight months, but who became cholaemic and died suddenly when everything seemed to augur that tapping alone would bring about cure.

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- ⁷ Same as (3).
- ⁸ Same as (1).