

of mucus or muco-pus is to be expected. If a general anæsthetic has been administered, I much prefer the patient in the lateral position—left or right according to circumstances—with the head slightly flexed towards the chest. By this means the larynx or upper end of the œsophagus is brought very much nearer to the operator than when the head is stretched backwards in the dorsal position, and I have a feeling that from the point of view of the anæsthetic it is a safer position for the patient.

The surgeon will find it wiser to wear plain glasses or his ordinary spectacles when making the examination, because, even when the patient is under fairly deep anæsthesia, a sudden cough may send a spray of very septic matter into his eye or paralyse his accommodation if cocaine has been freely used to anæsthetise the bronchus. Such a precaution will also protect his eyes from the "stinging" of the exhaled chloroform vapour, which may become a very real grievance during prolonged anæsthesia.

Finally, while it would be idle affectation to suggest that neither skill nor practice is necessary for the intelligent use of the bronchoscope in dealing with a very serious and not uncommon accident—viz., the inhalation or swallowing of a foreign body—yet it is very true that a little practice, combined with patience and gentleness, should render any surgeon competent to use the bronchoscope with reasonable assurance.

THE VALUE OF IONISATION IN INFLAMMATORY DISEASES OF THE LOWER BOWEL.

By J. CURTIS WEBB, M.A., M.B., B.C. CANTAB.

IT is not proposed to enter into any preamble as to the etiology, pathology, or symptoms of the various forms of inflammatory affections of the colon and rectum, and it would also appear to be out of place to attempt a review of the various treatments, dietetic, medicinal—whether by the mouth or per rectum—climatic, or balneological, that are individually or collectively advocated in these conditions. It is only designed to draw the more serious attention of the medical profession to a method of treatment as yet, I believe, not generally known and seldom used, which, when employed in conjunction with a suitable diet and careful regulation of the bowels, has yielded in my hands and in the hands of others who have employed it such gratifying results that it is felt that its adoption in the type of case referred to should be more general.

In THE LANCET of Nov. 4th, 1905, was published a letter of mine on the treatment about to be described, which was based on a paper published by Dr. Sydney M. Whitaker in the *Archives of the Roentgen Ray*, 1904-05, p. 171. At that time I only quoted one case, but since then such good results have been secured that some further remarks on the subject appear to be warranted.

The treatment is based on the principle of ionisation, whereby the passage of a constant current propels the basic ions of any salt in solution from the positive towards the negative pole. If, therefore, the rectum and colon be filled with a solution of the required salts, and connected to the positive pole of a source of constant current, the negative pole being on the abdomen and back, and a current be passed, there will be a passage of the metallic base of the salt into or through the diseased mucous membrane towards the negative pole.

Owing to the intolerance of the rectum to holding large quantities of fluid for a sufficient time to enable the cells of the mucous membrane to take up enough of the medicaments to be of any therapeutic value, the treatment of colitis by simple injections has usually been but of the nature of a pure lavage or washing, that is to say, to remove from the diseased bowel surface any faecal material adhering thereto by an antiseptic or stimulating solution.

The fact has long been recognised that solutions of salts of zinc applied to epithelium-covered surfaces have a particular healing effect in inflammations of these surfaces, and this fact is made use of in the treatment of the above diseases in the following manner.

The bowel is first thoroughly washed out in the morning with a copious plain warm water enema, repeated if

necessary. It is important to cleanse as far as possible the surface of mucous membrane, and thus give the ions about to be introduced every opportunity of penetrating uniformly. If, however, as is sometimes the case, this procedure either exhausts the patient or causes pain and consequent irritability of the bowel, it must be dispensed with, and all that can be done is to ensure a free evacuation shortly prior to treatment.

The actual technique of the treatment is as follows. The abdomen is first well soaped and the lather left on. On to the skin are now applied four layers of Gamgee tissue (8 in. × 6 in.) well soaked in a solution of sodium bicarbonate (about a tablespoonful to half a wash-hand basin of warm water). The Gamgee should be laid on very smoothly, layer upon layer, so as to avoid any wrinkles, and on the last layer is placed a sheet of tin or lead (7 in. × 5 in.) connected by a cord to the *negative* pole of the source of current. Soaping the abdomen, using bicarbonate instead of chloride of sodium (the carbonic acid ion being less irritating than the chlorine ion), and the avoidance of wrinkles in the Gamgee, all help in avoiding those troublesome little ulcers which sometimes occur. If there be any acne or other spots on the skin each should be covered with a small piece of sheet rubber, or they may be thickly painted over with rubber solution or collodion. When all is in place cover with a large piece of thin mackintosh sheeting—to avoid wetting the bed or patient's clothes—and then turn the patient on the left side and apply an exactly similar arrangement to the lumbar region. A towel applied as a binder will keep all in place. Both abdominal and dorsal electrodes are to be attached to the *negative* pole, and a useful contrivance to simplify this can be made by any ironmonger by soldering three ordinary screw terminals into a stout strip of copper; the two conducting wires from the electrodes can be attached to two of the terminals, while a few inches of copper wire will join the third to the pole of the source of current. The rectal electrode may be of several varieties, but, in the writer's opinion, the best, supplied by the Sanitas Electrical Company, 6, New Cavendish-street, London, consists of a spiral of wire attached to a short metallic tube which carries a terminal for the positive wire, and which can also be fixed to the tube from a douche can. Over the wire spiral, which is 12 in. long, is fitted a stout indiarubber tube closed at one end but with a lateral opening near the point. With the abdominal and dorsal electrodes in position the patient is now placed on the left side with a pillow under the buttocks and the shoulders low, and the rectal electrode is passed as far as possible—using soap or any non-greasy lubricant. This electrode is attached to a two-pint douche can, previously filled with a warm solution of sulphate of zinc, 2 per cent., which is hung a little above the level of the patient. About half a pint of the solution should be slowly run into the bowel and then the current *gradually* turned on till the milliampère-meter registers 15 to 20 milliamperes. The flow of the solution which continues all the time of the treatment should be so regulated that there is the minimum discomfort produced, and if the whole two pints can be retained it is an advantage. The current should be allowed to flow for from 10 to 15 minutes and then *gradually* turned off, the various electrodes disconnected, and the patient permitted to get out of bed to empty the bowel. After the treatment an hour's rest should be enjoined. This procedure should be repeated once every three to seven days, according to the severity of the case and the tolerance of the patient.

It was previously recommended that AgNO_3 solution should be employed of a strength of 1/10 per cent., but it has been found more convenient to use the ZnSO_4 solution instead, and the results are quite as satisfactory.

I have personally treated 14 cases of colitis by the above method, out of which number there has been but one failure. In this case the patient spends about seven months of each year in Egypt, where good milk and proper diet are hard to be obtained, and this fact has probably had some bearing on the unsatisfactory result. It is not claimed that all the remaining 13 cases were complete and permanent cures, but though this most gratifying result is known to have been secured in 6, of the other 7 5 are so much benefited as to only have the occasional passage of mucus without pain and to have greatly improved in general condition. Two have been lost sight of, but when the treatment terminated their

symptoms had disappeared and they expressed themselves as greatly benefited.

In 1910 I brought this treatment before the notice of a colleague in South Kensington, who since March of last year has had the opportunity of employing it in five cases. Dr. —'s notes are appended to show the results obtained from this treatment in the hands of one who lays no claim to any special electro-therapeutic experience.

CASE 1.—A, aged 34, female, suffering from general debility and neurasthenia. Has suffered from bowel disturbance for years, passing large quantities of mucus and casts; had great pain after taking aperient medicine or using an enema. Had been operated upon for piles and fissure two or three times. Was examined by Mr. F. F. Burghard with the sigmoidoscope in March, 1910. The bowel was seen to be covered with dry patches of mucus, between which ulcerated and bleeding mucous membrane was to be seen; this condition extended from the sphincter as far as the sigmoidoscope reached.

In all 15 treatments were given between March and July. All the mucus disappeared from the stools and the patient said her colitis was cured. She was examined with the sigmoidoscope in December, and the colon was found to be quite normal.

CASE 2.—B, female. Complained of flatulent distension and passing large volumes of flatus to such an extent that she could not go into society. Her bowels were also irregular and there was a copious amount of mucus in the stools. She had had many treatments, including Plombières douches. The fæces were examined by Dr. P. J. Cammidge, who reported that the patient was suffering from mucous colitis.

In February, 1910, she was examined under an anæsthetic by Mr. Burghard. The sigmoidoscope showed that the bowel was dry, cracked, and bleeding, with patches of dry mucus adhering to it. This patient had eight treatments, and was examined again in May, when the mucous membrane of the bowel was found to be quite normal. She has continued well up to December, 1910.

CASE 3.—C, female, aged 54. Patient had suffered from piles, prolapse, and copious mucous stools for many years. She was the subject of slight spina bifida, so the nervous sensibility of these parts was much diminished and she did not suffer much pain. For nearly two years she had been suffering from chronic diarrhoea with copious mucus and casts of the bowel. The piles, which were very extensive, were removed and gave no further trouble, but the signs of colitis continued. The patient had lost about 4 st. in weight. She was also examined by Mr. Burghard, and the sigmoidoscope revealed extensive colitis.

Treatment was commenced in March and nine applications were made. The mucus entirely ceased before the end of the treatments and the diarrhoea gradually got well, and up to January, 1911, there has been no return of the mucus, although the patient has been seriously ill with pleural effusion and jaundice.

CASE 4.—D, female, had suffered for many years from piles, fissure, fistula, and other rectal troubles, always had mucus in the stools, sometimes large casts. Had not known for years what it was to be free from pain or without discomfort in these regions. This patient was examined for him by Mr. F. Swinford Edwards in May, 1910. The sigmoidoscope showed extensive colitis as far as the instrument would go, also a small rectal polypus and some piles; these were removed, and the patient had five treatments with the ionisation. Up to December the patient had no return of trouble.

CASE 5.—E, female, aged 30. Very thin and emaciated; had been an invalid for some years, suffering from mucous colitis, passing large quantities of mucus and casts of the bowel. Seen in September, 1910, and had five treatments in three weeks. All the mucus disappeared and the patient then went abroad. In December she reported that the colitis was quite well and her general health greatly improved.

Other cases have been treated with immediate good results, but they are too recent to speak with confidence about yet.

On May 12th, 1908, before the Surgical Section of the Royal Society of Medicine, Mr. F. C. Wallis and Dr. W. Ironside Bruce read a paper on the Treatment of Ulcerative Proctitis by Zinc Kataphoresis, in which it was stated that it was my original communication to THE LANCET already referred to that drew the attention of the above authors to the possibilities of ionisation in proctitis. The cases they then reported show the extremely satisfactory results obtained by this method of treatment, results that have been confirmed by myself in the only two cases of this condition that have come into my hands.

Finding, however, that the introduction of a lint-covered electrode was too painful to be performed except under an anæsthetic the following simple contrivance was devised and has been used with the most happy results. Lengths of sausage skin were obtained each about a foot long and tested for freedom from holes by tying one end over a tap, turning on the water gently, and closing the other end. Such as were perfect were soaked for a week in a solution of HgI_2 in alcohol 1 in 500. By tying the end of one of these lengths and invaginating it a smooth membranous bag is formed which can be tied over the rectal electrode above described. If the bag be now filled with fluid some will be seen constantly to filter through. The bag should be lubricated with a non-oily lubricant and inserted into the rectum empty and filled with the ZnSO_4 solution when *in situ*. This very filling distends the bag so as to bring it into intimate contact with every part of the ulcerated mucous membrane, and the oozing through of the fluid keeps the part bathed with the solution of the salt that it is desired to ionise,

while at the same time any tenesmus that may be set up is unable to expel the fluid. The absence of pain to the patient by this method permits of a more frequent application of the treatment than when the wool-covered sound is used.

Bina-gardens, S.W.

ASCITES TREATED BY LYMPHANGIOPLASTY.

By R. ATKINSON STONEY, F.R.C.S. IREL.,

SURGEON, ROYAL CITY OF DUBLIN HOSPITAL;

AND

T. GILLMAN MOORHEAD, F.R.C.P. IREL.,

PHYSICIAN, ROYAL CITY OF DUBLIN HOSPITAL.

As the operation of lymphangioplasty is still in its infancy all cases treated by the method should be reported whether successful or not. This applies especially to cases of ascites, as here the various forms of the Talma-Morison operation are rivals in the field of treatment, and it is only time and experience that can decide which is the better method of treatment, or if these two different types of operation will be finally found to be indicated each in a different class of case.

The following are the notes of a case in which the introduction of artificial silk lymphatics, according to the method suggested by Sampson Handley in his Hunterian lectures for 1910, has been followed by disappearance of the ascitic fluid.

The patient, a man, aged 20 years, was sent from County Cavan to the Royal City of Dublin Hospital on account of swelling of the abdomen and difficulty of breathing, and was admitted to the medical wards on August 24th, 1909. No history of any previous illness could be obtained except that there had been an attack of measles in childhood. There was no suspicion of syphilis, congenital or acquired, and no history of alcoholism. The present illness was stated to have commenced six months previously with pains in the chest and abdomen following exposure to severe cold. Three weeks prior to admission the abdominal swelling was first noticed.

On examination the patient was found to have considerable cyanosis and dyspnoea; the pulse was weak and irregular; the heart sounds were normal, with, however, some increase in the area of cardiac dullness; the lungs were normal, except for some hypostatic congestion at the bases. The abdomen was much distended with fluid, but the edge of the liver was palpable by dipping, and felt hard and firm at a level three finger-breadths below the costal margin. The superficial veins of the abdominal wall were distended, especially in the neighbourhood of the umbilicus. There was a trace of albumin in the urine, but no other abnormality; the blood showed some increase in the number of red cells, and there was a little œdema about the ankles and lumbar region. The diagnosis arrived at was that of cirrhosis of the liver, possibly of the capsular type, and constituting a part of the more general disease polyserositis. No cause for the cirrhosis could be suggested.

On the day following admission the abdomen was tapped and 175 oz. of serous fluid were removed. Very few cells were found in the fluid, those present being mainly endothelial. The removal of the fluid gave the patient great relief: the cyanosis disappeared almost entirely, and the œdema of the legs, lumbar region, and lungs disappeared altogether for some days. After about a week, however, the abdomen began to fill again, and at the same time a left-sided pleural effusion began to form, and on Sept. 5th extended as high as the fifth dorsal spine, a well-marked paravertebral triangle being present on the opposite side. Coincidentally the cyanosis and dyspnoea again became marked, and it had just been decided to again tap the abdomen when the fluid began to subside in both pleural and abdominal cavities. Ultimately the pleural effusion completely cleared up, and only a small amount of ascitic fluid persisted. The patient returned home to the country on Oct. 17th at his own request.

Almost immediately after leaving the hospital the abdomen again became swollen, and the patient was compelled to remain in bed. He accordingly again returned