selves entirely to their practice and have given little thought to the organization of the profession. But the time has come when this isolation and inertia must give place to an active interest. The attempt by some local authorities to compel their medical officers (and nurses) to belong to a particular body, whether a trade union or not, is a threat to our freedom as individuals, and in it we see a warning of what is to come. We stand for professional and individual freedom: our membership is voluntary—we are proud of it, and intend that it shall remain so.

We are living in days when the individual is coming to count for little, and there is a danger that excessive concentration of power in the hands of the State may in time tend to reduce all voluntary associations to an ancillary if not a decorative function. Yet in most great nations, certainly in all the Anglo-Saxon communities, innumerable voluntary associations—professional, cultural, economic, spiritual—have been the pioneers of all humanitarian development, the "cutting edge" as it were of Progress. It is true that the present Government is anxious for voluntary effort to continue; but Ministers and officials come and go, and we must take thought for the future. For this reason we must be vigilant and do all that is possible to secure and maintain the unity of our profession. Vigilance alone is not enough—in union will lie our strength.

The difficulties that confront us are many and considerable, but with wise resolution and statesmanship the Association will emerge with even greater authority, and, in the forefront of all that concerns the national health, it will continue its pursuit of the aims laid down in its Memorandum of Association nearly three-quarters of a century ago: "To promote the medical and allied sciences and to maintain the honour and interests of the profession."

SURGICAL ASPECTS OF AMOEBIASIS

BY

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During the recent war amoebic colitis was so prevalent that it constituted a major problem for the medical services. Of greater importance, however, was the disturbingly high relapse rate after treatment: Payne (1945) estimated that in India alone a 20% carrier rate existed among British troops. It seems likely, therefore, that the complications of amoebic dysentery will play an important part in post-war civilian practice. In the surgical sphere an infection of this type is apt to give rise to considerable difficulty in diagnosis, and may at the same time exert a great influence on the course and outcome of surgical ailments and, in particular, on the results of operative treatment. A discussion of some aspects of amoebiasis, based mainly on experience gained in the surgical wards of the King Edward VII Hospital, Durban, may therefore be of interest.

General Influence on Operative Treatment

The mortality rate following operations on patients suffering from untreated and often undiagnosed amoebic infection is considerable. This is largely explained by: (*a*) The reduced resistance as a result of the chronic infection, with consequent increase in the number and severity of post-operative complications. A factor of importance is the frequent association of hypoproteinaemia with amoebic infection (Faust, 1930; Elsdon-Dew, 1946). The predisposition towards the development of post-operative complications caused by this type of deficiency is too well known to require amplification. (*b*) The interference with wound-healing, with the occurrence in some cases of ulceration and sloughing of the skin of the abdominal wall. This complication is especially apt to occur after the establishment of a colostomy. (*c*) The tendency to "breakdown" at the suture line after operative intervention on the bowel. Consequently, procedures such as intestinal anastomosis, appendicectomy, etc., may be associated with the development of faecal fistulae and general peritonitis. (*d*) The development of acute amoebic dysentery during the immediate post-operative period—probably the result of handling of the bowel during operation. In most cases this is of little moment, provided that early treatment is instituted. On occasion, however, the condition may simulate bacillary dysentery in the severity of the diarrhoea, with a consequent adverse effect on the prognosis. It is of interest that this phase of acute diarrhoea may occur within forty-eight hours of operation on patients suffering from severe general peritonitis. This was a feature in two cases in which the development of paralytic ileus had appeared almost inevitable; stool examination revealed the presence of numerous free forms of *Entamoeba histolytica* with ingested erythrocytes. (*e*) During the post-operative period a mild hepatitis is not uncommon. Spontaneous remission is usual, but occasionally a progressive form is encountered. The following case report is illustrative.

A Zulu male aged 58 was admitted to hospital shortly after being stabbed in the left lumbar region. Laparotomy revealed partial severance of the renal pedicle, with laceration of the tail of the pancreas. Nephrectomy was followed by repair of the pancreatic lesion, with drainage of the site. The development of a pancreatic fistula caused a stormy convalescence, but by the twenty-first day the wounds had healed and the patient was allowed up. Four days later sudden relapse occurred, and rapid deterioration culminated in death. Post-mortem examination revealed the presence of a typical amoebic abscess, partly protruding from the lower surface of the liver and surrounded by numerous smaller areas of necrosis and liquefaction. It seems probable that the combination of operative trauma and the general reduction in resistance precipitated a rapidly progressive type of hepatitis.

Many of these post-operative complications are likely to occur in Britain during the post-war years. Failure to recognize the cause may be disastrous. Thus it would be good policy to view with suspicion every candidate for operation who has seen service in a tropical or subtropical zone, whether or not a history of dysentery is elicited; and, where possible, pre-operative investigation in the form of sigmoidoscopy and stool examination should be employed. After emergency operations a watchful eye should be kept for complications suggestive of amoebiasis, so that early and energetic treatment may be instituted if necessary.

Abdominal Amoebiasis

Acute Hepatitis and Hepatic Abscess

In the classical case of acute hepatitis, in which the maximum intensity of pain is present in the lower costal, subcostal, or epigastric areas, the diagnosis is seldom difficult. However, the atypical form, simulating acute cholecystitis, perforation of peptic ulcer, acute appendicitis, or even renal colic may act as a surgical stumbling-block. During the early stages of a severe infection of this type pain, tenderness, and resistance may be so generalized as to suggest the onset of general peritonitis, while not infrequently the signs may be maximal in the right iliac fossa. Occasionally the presence of a "reflex ileus" in association with persistent vomiting, constipation, and distension provides a picture difficult to distinguish from that of acute intestinal obstruction. The immediate problem,

therefore, is the elimination of acute abdominal conditions requiring urgent operative treatment.

Although a history of amoebic dysentery may be lacking, the patient should be carefully questioned regarding overseas travel. Any previous contact with a tropical or subtropical zone should be viewed with suspicion in relation to possible exposure to infection. It is characteristic of this condition that the clinical picture may change completely over a period of one or two hours. It is advisable, therefore, to repeat the examination at frequent intervals until such time as the diagnosis is established. Antero-posterior compression of the thorax, gentle "fist" percussion over the lower ribs, and auscultation of the right pulmonary base are measures which may be of value when locating the site of the lesion. Constipation, rather than diarrhoea, is the common finding. Consequently, during the initial phase, when the diagnostic difficulties are most pronounced, adequate stool examination is rarely possible. Sigmoidoscopy, however, should be performed in all doubtful cases and should reveal the presence of amoebic ulcers or, more frequently, the " raised crateriform pits " which, as pointed out by Cropper (1945) and Morton (1946), are pathognomonic of quiescent amoebic colitis in about half the number.

A moderate leucocytosis is almost invariably present, and a differential count should help to exclude a pyogenic infection by showing that the polymorphonuclear cells form, at most, only 75 to 80% of the total count. Radiological examination, preferably by screening, will often establish the fact that the right cupola of the diaphragm is elevated, and the degree of fixation is a reliable pointer as to whether abscess formation has occurred.

If operation is withheld during the first twelve to twenty-four hours the diagnostic difficulties are considerably reduced. Pain and tenderness tend to become localized, and as the result of reduction in the resistance of the abdominal musculature an enlarged liver may become palpable. Should reasonable doubt still exist at this stage and there be no urgent indications for operative intervention, a therapeutic trial of emetine is justified. This procedure usually helps to establish the diagnosis within twenty-four to forty-eight hours.

Treatment.—The treatment of acute hepatitis is standardized and the response is generally satisfactory. However, it should be emphasized that unless the primary and often symptomless bowel lesion receives attention, preferably by means of E.B.I. together with " quinoxyl " retention enemata, reinfection of the liver at a later date is likely.

Amoebic Liver Abscess

This condition is invariably preceded by a diffuse hepatitis, and during the early stages often presents similar diagnostic difficulties. A history of previous dysentery is obtained in less than half the cases, and even then the symptoms attributable to the colon may antedate the hepatic lesion by as much as fifteen years. Although general debility, loss of appetite, progressive weakness, and emaciation are characteristic, many cases are on record in which the diagnosis was established only after an apparently symptomless abscess had ruptured into the peritoneal cavity. The fact that pyrexia is often inconstant or absent and that adhesions following perihepatitis may prevent downward enlargement of the liver further helps to cloud the issue.

Leucocytosis is present in over 80% of cases and, as already mentioned in connexion with acute hepatitis, the differential count is of value in excluding a pyogenic infection. In addition, in the absence of secondary infection a total count in excess of 20,000 is suggestive of multiple abscess formation. Radiological screening should in the great majority of cases place the diagnosis beyond dispute. The immobile tented appearance of the right cupola of the diaphragm, with obliteration of the costophrenic angle, is characteristic. A small effusion, often blood-stained during the early stages, is commonly associated with a variable degree of basal consolidation. In the type of case in which the pulmonary signs tend to overshadow the hepatic lesion this sero-sanguineous effusion is apt to suggest the diagnosis of pulmonary neoplasm.

Treatment.—Repeated courses of emetine will cure cases in which pus formation has been minimal, but as a rule it is necessary to empty the abscess cavity by aspiration through a large-bore needle. However, it is advisable to delay this procedure until such time as 3–4 gr. (0.2–0.26 g.) of emetine has been administered. Air instillation is of value as a means of utilizing radiological control, and is to be preferred to lipiodol. Should this procedure be employed, a volume of air equivalent to half the quantity of pus aspirated is introduced into the cavity. Thereafter the fluid level and the size of the cavity, as shown by a series of weekly *x*-ray examinations, will indicate the necessity or otherwise for further aspiration. Owing to the absorption of air it may be necessary to repeat the instillation at the end of three or four weeks.

After the adoption of the aspiration technique in preference to operative drainage the mortality rate fell from over 40% to approximately 6%. However, operation is still indicated under the following circumstances: in the presence of secondary infection by non-penicillin-sensitive organisms ; when an abscess points on the abdominal wall or through an intercostal space ; in resistant cases in which no improvement has occurred despite aspiration and repeated courses of emetine ; and following rupture of an abscess (usually of the left lobe) into the peritoneal cavity.

Rogers (1922) showed that the high mortality rate following operative drainage was almost entirely due to toxaemia resulting from secondary infection of the large previously sterile cavity. It is possible, however, by means of closed drainage, employing the fluid-seal principle, to eliminate this hazard to a large extent. The local and parenteral use of penicillin has further added to the safety of operative drainage. It should therefore be accepted that in those cases which do not respond to aspiration and emetine operative drainage should not be unnecessarily delayed.

Results.—Although in a small personal series penicillin was not employed, operative drainage performed on 13 cases resulted in one death, this being due to acute congestive cardiac failure occurring within six hours of operation under local anaesthesia. One case of rupture of an abscess of the left lobe into the peritoneal cavity was treated by laparotomy and drainage, with an uneventful recovery.

Perforations of Colon

This type of complication is usually described as being rare and almost uniformly fatal. There are, however, two distinct groups. In the first group the perforation is single, and there is a marked tendency towards the formation of a localized abscess. These patients are often in good general condition, and a number of recoveries are on record. Four out of five of my own patients survived, following simple drainage of a pericolic retroperitoneal abscess. Treatment during the earlier stage is rather more difficult. The friability and induration of the colon usually necessitate an exteriorization procedure rather than closure of the perforation by suture.

In the second type the perforations are multiple and are associated with a severe general peritonitis, which, according

to the literature is invariably fatal. As most of the standard works on tropical medicine devote only a few lines to this type of complication, the following more detailed observations may be of value.

Multiple Perforations with General Peritonitis

This condition seems to occur mainly as a result of an acute or fulminating attack of dysentery superimposed on a long-standing chronic colitis of amoebic origin. The frequency of occurrence of this complication amongst African patients treated in Durban largely accounts for an over-all mortality rate of 10.8% in cases of amoebic dysentery (Elsdon-Dew, 1946).

The clinical picture is characteristic. The patient is admitted with acute dysentery, usually giving a history of numerous previous attacks over a period of some years. The toxic appearance, high temperature, tachycardia, and severity of diarrhoea tend to suggest a bacillary infection, but examination only reveals numerous free forms of *Entamoeba histolytica*, motile and haematophagous in type. Neither emetine nor chemotherapy appears to exert any appreciable effect, and deterioration is progressive. The earliest positive sign is that of gradually increasing tenderness, most pronounced over the caecum and pelvic colon. This is followed in two or three days by a moderate accumulation of intraperitoneal fluid. Guarding and rigidity are often fleeting in character and less marked than in cases with perforation of a single ulcer. Finally, sudden collapse, with subnormal temperature and signs of acute peripheral vascular failure, occurs.

Post-mortem examination, performed on 15 such cases, showed numerous perforations, with an average of five per case and ranging from 0.5 to 1.5 cm. in diameter. Distribution was generalized, the sites being the caecum and ascending colon, pelvic colon, hepatic and splenic flexures, and transverse colon, in that order of frequency. Gross thickening of the bowel wall was associated with diffuse ulceration and often a polypoid appearance, while the presence of numerous small areas of gangrene served to explain the multiplicity of the perforations. A peculiar feature of these cases, as distinct from the single-perforation variety, was the fact that the peritoneal fluid tended to be serous rather than purulent even when death had been delayed for three or four days after perforation. Of importance in relation to possible treatment was the finding that the omentum was usually adherent to the colon, and in many cases the perforations were completely sealed off. This fact suggested a comparatively slow process of erosion with peritoneal irritation, causing omental adhesion prior to the actual terminal thrombosis and perforation. Supporting evidence in favour of such an assumption is the fact that clinical examination usually revealed signs of peritoneal irritation and the presence of free fluid for one or two days before the final catastrophe.

Treatment.—In view of the depressing clinical picture and the findings at necropsy, it is obvious that the choice of a suitable operative procedure is a matter of some difficulty. In fact, the condition of the patient when first seen and the lack of response to resuscitative measures are usually sufficient to eliminate any idea of operation. Fortunately, it was found that when plasma transfusion was augmented by intravenous injection of adrenal cortical extract in 2-ml. doses repeated at hourly intervals a slight but definite improvement occurred, often just enough to allow of a minimal degree of operative intervention under local anaesthesia. The relatively extensive procedures such as exteriorization or repair by suture were precluded by the number and wide distribution of the perforations and the friable, necrotic condition of the colon, apart altogether from any immediate disturbance to the patient entailed by their performance.

In view of the localizing action of the omentum, as demonstrated at post-mortem examination, and the absence of faecal content in the colon, as a result of the continuous diarrhoea, a simple procedure such as a "defunctioning ileostomy" appeared to be logical. Consequently, the following routine was adopted. A small muscle-cutting incision was made over the right iliac fossa, and the caecum, ascending colon, and, if possible, transverse colon were examined. Caecostomy was then performed, using a 3/4-in. (1.9-cm.) bore rubber tube, which was manœuvred through the ileo-caecal valve into the ileum. In cases where induration, friability, and fixity of the caecum prevented this move the more time-consuming but also more efficient double-barrel ileostomy procedure was adopted. During the first twenty-four hours after operation adrenal cortical extract was given at four-hourly intervals. Intestinal decompression, intravenous fluid, electrolytes, and protein, and the administration of sulphathiazole constituted the routine post-operative treatment. Emetine was not given until the end of the first week.

Results.—Twelve cases were not treated by operation, but otherwise received the full routine. There were no recoveries. Out of 15 cases which received operative treatment seven recovered.

Affections of the Caecum

Amoeboma.—The differentiation between amoeboma and carcinoma of the caecum may be very difficult. If after full routine investigation there is still some doubt a full course of emetine should be given, preferably preceded by chemotherapy in order to reduce any secondary infection present. Only if resolution is complete, and confirmed radiologically, should the diagnosis be accepted. However, as pointed out by Naunton Morgan (1944), the degree of fibrosis present as a result of secondary infection may prevent a satisfactory response to emetine. In such a case it may be impossible to confirm the diagnosis except by microscopical examination following operative removal.

Acute Typhlitis.—Acute amoebic infection of the caecum may provide a picture indistinguishable from that of acute appendicitis. However, provided that this possibility is kept in mind, a careful history and examination will suggest the correct diagnosis in the majority of cases; but in some the element of doubt will necessitate laparotomy. Recent observers, dealing mainly with military cases of relatively short duration, tend to regard the incidence of acute appendicitis in association with amoebic typhlitis as negligible. However, experience in non-European practice does not altogether support this view, and one-third of my cases required appendicectomy for obstructive lesions. It should be emphasized, however, that obstruction or interference with the blood supply is the only indication for appendicectomy in the presence of active amoebiasis. If under these circumstances it is found necessary to proceed with the operation, certain additional safeguards are required in order to minimize the risk of the formation of faecal fistula. A double purse-string of silk or linen is used to invaginate the stump, the omentum is brought down to reinforce the suture line, and a soft rubber tissue drain is inserted into the right paracolic gutter. Emetine is administered immediately after operation.

Results—In seven cases in which appendicectomy was performed convalescence was uneventful. Fourteen cases not subjected to operation showed dramatic response to emetine. Symptoms diminished after twenty-four hours, and were usually absent by the end of one week.

Acute Intestinal Obstruction due to Amoeboma

A number of cases of intestinal obstruction were encountered in which amoebic dysentery appeared to be the major causative agent.

Case 1.—The patient, a boy aged 3½, had no history of dysentery. Examination revealed the presence of a tumour in the epigastrium, and a diagnosis of intussusception was made. Laparotomy revealed an inflammatory mass the size of a billiard ball arising from the wall of the transverse colon; it was adherent to the surrounding structures and the anterior abdominal wall. There was no pus formation, and the mass was mobilized without difficulty. In view of the degree of obstruction, a Mikulicz resection was performed, with drainage of the proximal loop by means of Paul's tube. Death occurred from bronchopneumonia seven days later. The inflammatory mass was found to be a non-specific granuloma, almost certainly amoebic in origin.

Case 2.—A woman aged 54 had a palpable mass in the right hypochondrium. There was no history of dysentery. Operation showed a granulomatous mass the size of an orange arising from the proximal part of the transverse colon and presenting signs of central softening. After mobilization it was found that the intestinal lumen was only partially obliterated. The mass was therefore marsupialized through a small wound in the flank, the omentum being used as an aid in sealing it off from the peritoneal cavity. Relief of tension following aspiration of the central abscess ensured the patency of the colon. After the closure of the original paramedian wound a drainage-tube was introduced into the abscess cavity. Convalescence was not complicated by the development of a faecal fistula, and resolution of the mass appeared to be complete.

Acute Intestinal Obstruction due to Ileo-caecal Intussusception

During a period of less than a year four cases of intussusception were encountered in adults. In each of these operation showed chronic inflammatory thickening of the colon suggestive of chronic amoebic dysentery. Two cases, with histories of four and seven days, were too far advanced for effective surgical treatment, and death resulted soon after admission.

Case 3.—A girl aged 14 developed severe abdominal colic while in hospital under treatment for dysentery. Rectal examination carried out twelve hours later revealed the presence of an intussusception. In view of its extent operative reduction proved to be surprisingly easy, and the bowel was found to be viable. Convalescence was uneventful.

Case 4.—A man aged 32 came with nine days' history of abdominal pain. Operation revealed an ileo-caecal intussusception which had advanced as far as the middle of the transverse colon. Complete reduction proved to be impossible and the caecum was found to be gangrenous. The proximal opening formed by the walls of the ensheathing layer was therefore closed by means of mattress sutures; the addition of interrupted sutures to anchor the entering portion of the ileum completed the procedure, by which the devitalized bowel was excluded from the peritoneal cavity. Ileotransversostomy was then performed with some difficulty owing to the friability and chronic induration of the colon. After ten days the devitalized portion of the intussusceptum was passed as slough per rectum, and further progress was uneventful.

Summary

The high carrier rate of *E. histolytica* among repatriated Service personnel is emphasized in relation to probable effects on post-war civilian practice.

Some of the surgical aspects of amoebiasis are discussed on the basis of experience gained in the treatment of African patients.

The results are given in a series of cases which include infection of the liver, perforation of the colon, acute infection of the caecum, and intestinal obstruction due to amoeboma.

My thanks are due to Mr. Arthur Copley and Mr. Algar Sweetapple for their advice and guidance in the treatment of these cases.

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IODINE AND FAILING LACTATION

BY

MARGARET ROBINSON, M.D., D.P.H.*

An investigation into the part played by hormones in failing lactation was started under the auspices of the Medical Research Council on the suggestion of Prof. F. G. Young, D.Sc. The work began in 1944 in St. Thomas's Hospital by permission of Mr. J. M. Wyatt and Mr. A. J. Wrigley. It was extended in 1946 to University College Hospital by permission of Prof. W. C. Nixon and Prof. F. J. Browne. During this investigation it was discovered that large doses of dried thyroid gland caused a greater increase in milk yield per day in puerperal women than any of the other hormone preparations. This led to the trial of Lugol's solution in similar cases of failure to establish lactation in the puerperium. The results from the administration of Lugol's solution were found to be even more satisfactory. It was therefore decided to publish this preliminary report.

Method

Criteria of Failure to Establish Lactation in the Puerperium.—In 500 untreated lactations in St. Thomas's Hospital the infants were test-fed each day during the puerperium, and were then followed up during the next six months. It was found that failure of lactation before the infant was 6 months old was rare where the total milk output on the fifth day of the puerperium had been at least 10 oz. (285 ml.) and on the tenth day of the puerperium at least 16 oz. (455 ml.). Nearly all the failures occurring in the first three months of lactation had had a total milk output either of less than 10 oz. on the fifth day of the puerperium or of less than 16 oz. on the tenth day. Therefore an output of at least 10 oz. on the fifth day of the puerperium or of at least 16 oz. on the tenth day was taken as the standard of establishment of lactation in the puerperium.

Assessment of Milk Yield.—From the fifth day of the puerperium until discharge from hospital the infants were test-fed at every feed. The sum of all the test feeds done in any one day gave the total output of milk for that day. The total output was calculated for each day of the puerperium. Owing to the fact that the patients were being discharged early from hospital on account of shortage of maternity beds, it was possible to treat only those patients who showed signs of failure on the fifth day—that is to say, those patients whose total milk yield as estimated from test feeds was then less than 10 oz. Treatment was started on the sixth day of the puerperium and continued either until the total daily milk yield had risen to 16 oz. a day or until the patient was discharged from hospital. After discharge from hospital the mothers reported with their infants when they were 4 weeks old. Owing to the shortage of beds and the distances the patients had to travel only two consecutive test feeds were

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