AMŒBIASIS IN SECUNDERABAD.

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CHRONIC AND RELAPSE CASES.

In these cases we have in the past put too much reliance on successive courses of emetine. One must now recognize a class of individual who may be called emetine resistant, for whom repeated courses of the drug are therapeutically useless and may even be dangerous. General tonic and dietetic treatment, and if necessary the administration of some astringent drug, such as tannatin, residence away from endemic areas and even change home to England would appear to be the most rational line of treatment for such individuals.

It is doubtful if many of the so-called relapse cases are in reality true relapses. Many of them could more accurately be termed reinfections of susceptible individuals. This is of course difficult to prove, but the fact that many so-called relapses occur when the incidence of fresh cases is also high is suggestive.

TOXIC EFFECT OF EMETINE.

I have seen no ill-effects from the use of emetine in patients treated in hospital; a few cases were noted to have an abnormally slow pulse-rate (averaging 38-42) while under treatment, but I do not consider this brady-cardia to have been due to the emetine. There has been no case of a patient being readmitted to hospital after discharge on account of any ill-effects from the drug.

One case, an officer of the Royal Army Medical Corps, treated in quarters with a full course of emetine injections followed by a course of E.B.I. pills and a second half-course of emetine injections, suffered from marked debility, loss of weight, tremulousness and weakness of the hands and arms almost amounting to paresis, and a fine branny desquamation of the palms and wrists following the cessation of treatment. These symptoms were probably due, in part, at any rate, to the toxic action of the drug.

COMPLICATIONS AND SEQUELÆ.

The relationship of hepatitis and abscess of the liver to amoebiasis has, of course, been definitely established, and it may be safely said, with certain reservations, that in India every case of inflammation of the liver met with is amoebic in origin. At the same time it must be realized that other factors play an important part.

Manson Bahr [9] has noted that the Indian sepoj, whilst equally—
probably more—susceptible to amöbic dysentery than the British soldier, suffers to a much less degree from hepatic inflammations.

The attached Chart III, which shows the relative incidence of dysentery, hepatitis, and abscess of the liver in European and Indian troops respectively emphasizes this point.

Chart III.

Alcoholic excess is supposed to be a marked predisposing factor in the causation of hepatitis. The sepoys, although not as blameless as in the past in this respect, is even now much less addicted to strong drink than the European. This fact, combined with the comparative simplicity of the diet of the native, aided by some relative racial immunity, probably explains the comparative rarity of the liver complications of amöbiasis in his case.

Chart IV, compiled for the years 1917-1920, shows that while, as far as the British Army is concerned, dysentery is almost three times more common in the southern than the northern army, yet the
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Liver complications predominate slightly in the northern army, thus suggesting the influence of cold as a predisposing factor.

As regards seasonal influences the monthly distribution appears fairly even, and follows more or less closely that for dysentery.

Hepatitis is, I am convinced, as far as the European soldier is concerned, almost invariably amoebic in origin, and forms the presuppurative stage of amoebic abscess of the liver. By the general recognition of this fact, which has been brought home to us so clearly by the writings of Sir Leonard Rogers [10], many cases of incipient abscess of the liver may be aborted. It is of the very greatest importance that in all cases of hepatic tenderness, if combined with fever and a dirty tongue, especially when occurring in a locality where amœbiasis is endemic, specific treatment with pulv. ipecac., or its derivative emetine, should be immediately given.

Rest in bed, with the exhibition of salts and the old-fashioned remedy ammonium chloride, may cure many cases, but there will be many others for whom this treatment fails, and who will pass steadily on to abscess formation with all its attendant dangers, unless specific treatment with one or other of the ipecac. derivatives is employed.

After a fairly extensive experience with emetine I have never yet met with any harm in its use if the patient is kept under supervision in hospital, and its action in these early cases of hepatitis with slight liver tenderness and enlargement is so marked and immediate as to constitute the best diagnostic method at our disposal.

The average age incidence of forty-six cases of hepatitis was found to be 27.8 years (average age for all admissions excluding hepatitis was 22.6 years). The average age for seven cases of abscess of the liver was 34.7 years.

In this station we have met with two main types of hepatitis, which may be called: (1) Generalized; (2) acute localized.

(1) Generalized Hepatitis.—The onset may be acute, more often subacute, or even chronic, amounting to little more than a mere congestion of the liver. There is generalized uneasiness over the liver area, accompanied by slight tenderness, along the right costal margin often extending to the left of the mid-line. The patient complains of a sense of fullness over the epigastrium, and there is slight abdominal distension. There is usually a slight evening rise of temperature to 100° or 101° F., with only a slight morning remission; in the later stages the evening temperature becomes higher, average 102° to 103° F., with a well-marked morning remission or even intermission. The tongue is slightly furred and the bowels are constipated. The lower border of the liver is usually displaced two to three fingers' breadth below the costal margin, while the upper margin rises up to the fifth rib or the fourth interspace. There is usually increased dullness in the right axilla, and the air entry at the base of the right lung may be deficient. There may be a slight icteroid tint of the conjunctiva, but never in our experience true jaundice. Pain of a "gnawing" variety...
is often felt in the right shoulder uninfluenced by movements of the arm. In slight cases the only symptom referable to the liver may be a slight "dragging" pain in the hepatic region when turning over in bed; when present this symptom is very characteristic.

This constitutes the early stage of hepatitis; the symptoms may subside under appropriate treatment, or it may pass on to the more serious condition of acute localized hepatitis.

(2) Acute Localized Hepatitis.—In this condition all the signs and symptoms of the early generalized hepatitis persist. In addition there is an acutely tender spot that can usually be covered by one finger, and which is commonly situated on the anterior aspect of the liver an inch or so above the rib margin, but it may occur anywhere over the hepatic area. The slightest “brush” with a finger over this very localized area may give the patient the acutest pain.

In addition to this symptom he is now obviously ill, his tongue is dry with a white or brown crust, the temperature is swinging and approaching the hectic type, although a continuous fever of a pneumonic or typhoid type is not uncommonly met with. The bowels are often constipated, and the patient may suffer from rigors and profuse sweats. There may or may not be a history of previous dysentery, although a history of diarrhea with the occasional passage of mucus is commonly given. The blood-count is usually normal or there may be a slight leucocytosis.

This constitutes the immediate presuppurative stage of liver abscess, and if treatment with emetine be not commenced at once an abscess will result.

The following cases are examples of hepatitis:

Case 3 (Subacute Generalized Hepatitis).—Lieutenant W., aged 27, was admitted to B.S.H., Secunderabad, on July 26, 1923, suffering from pain along the right costal margin and in the corresponding shoulder. He had had several attacks of malaria during the past two years, and had undergone a complete course of twelve grains of emetine by injection for a severe attack of amebic dysentery in August, 1922. His temperature on admission was 99°F. and his pulse-rate 88, he was pale and sweating, and he looked ill. The liver was enlarged downwards to one finger's breadth below the right costal margin and upwards to the fifth rib. There was generalized tenderness along the lower rib margin, and he complained of a dull aching pain in the right shoulder. A W.B. count gave 6,500 leucocytes per cubic millimetre. There was a slight relative lymphocytosis but no eosinophilia. For the next few days his condition remained unchanged, his temperature was of a regular intermittent type, rising to 100°F. every evening, blood smears were negative to malaria, and sodium salicylate failed to allay the pain in his right shoulder, which was always worse at night, sometimes keeping him awake. It was noticed that the shoulder pain was not affected by movements of the arm. The air entry and percussion note were defective at the base of the right lung. Emetine
injections were commenced on August 1, and that night his temperature dropped to normal for the first time. The hepatic tenderness and shoulder pain also left him that day, and he slept well for the first time since admission. On the evenings of August 3 and 5 there were evening rises of temperature to 102° and 103° F., in spite of which he slept well and complained of no further pain. A blood smear taken on August 5 contained numerous benign tertian rings. The emetine injections were continued to a total of eight grains and quinine was given. There was no further rise of temperature, and he left hospital cured ten days later. Six months after discharge he was as well as he had ever been and was putting on weight.

This was a moderately severe case of generalized hepatitis which reacted rapidly to emetine medication.

The onset of malaria in a malarial subject following emetine injections has been noted in several cases. It is apt to mask the beneficial action produced by the emetine.

Case 4.—Corporal H., aged 28, was admitted to hospital on February 24, 1923, complaining of acute localized pain in the right side of his chest. He had been in hospital four months previously suffering from an acute attack of amebic dysentery which had relapsed while under treatment with emetine. He admitted to being a moderate beer drinker (averaging four pints daily, more on occasion). He dated the onset of pain in the right side two days previously on return from a tour of duty at Deolali. On admission patient looked ill and his colour was bad. There was an acutely tender spot two and a half inches to the right of mid-line at the level of the costal margin. The pain did not shift in position, and was stabbing in character. The lower border of the liver could be felt one inch below the right costal margin. Temperature on admission 103° F., blood smears were negative to malaria, and a stool was negative to E. histolytica. In view of the definite history of a previous and resistant attack of amebic dysentery and of his present condition, there was no doubt as to the diagnosis, and emetine injections were commenced at once. The only symptom that remained after the first day’s treatment with emetine was slight pain of a dragging nature over the liver area when patient turned in bed, a common complaint of mild and recovering cases of hepatitis. His temperature fell to normal for four days, at the end of which time he noticed a return of pain in his right hypochondrium and his temperature rose to 101° F. The emetine injections were continued every morning, and pulv. ipecac. was given every night in twenty-grain doses in the form of a bolus preceded by fifteen minimis of tinct. opii. Under this combined treatment his symptoms quickly subsided; he was discharged fourteen days later to duty, and after eight months had not reported sick.

Case 5.—Private E., aged 31, was admitted to B.S.H., Secunderabad, on March 11, 1922, complaining of pain under the ribs just to the left of the mid-line. He had first noticed the pain two days previously; had been
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unable to eat, but was able to carry on with his duties. There was no definite history of dysentery, but he had suffered from mild diarrhoea with occasional passage of slime some weeks previously. He was a moderate beer drinker. On admission his colour was bad (greyish), his temperature was 100.3°F., pulse-rate 112, and he complained of acute pain and tenderness over a small area immediately below the costal margin two inches to the left of the mid-line; the pain caused him difficulty in breathing (respirations 26). The slightest "brush" with the finger over this area made him wince. Emetine injections in one-grain doses daily were at once commenced. By March 15, 1922, the pain had eased considerably, and was now only noted if the area was palpated or on turning in bed. There was still a slight evening rise of temperature to 100°F. After thirteen grains of emetine had been given there still remained slight pain over the localized tender patch, and the evening pyrexia persisted. The patient was given enemata, consisting of three grains of emetine dissolved in four ounces of water, in the hope that direct absorption might take place into the portal system. There was no improvement after three days of this treatment and so he was given pulv. ipecac. in daily doses of fifteen grains for six doses. His symptoms now rapidly cleared up, he was discharged to duty after a fortnight, and seventeen months later had not reported sick.

It is interesting to note that emetine, although having a remarkable immediate effect both on the hepatic enlargement and pain, and on the temperature in these cases of acute localized hepatitis, seldom produces a complete cure unless followed by the oral administration of pulv. ipecac. which even in small doses is apparently able to finish the tasks admirably initiated by the emetine.

Both Cases 4 and 5 were moderately severe examples of acute localized hepatitis probably bordering on abscess formation.

The history of "beer" in both is characteristic of the group.

**Abscess of the Liver.**

This serious condition is only one step more advanced than the previously described acute localized hepatitis and must in my opinion be invariably preceded for a longer or shorter period by some form of non-suppurative hepatitis.

To use an "Irishism," the ideal treatment of liver abscess should be its prevention or treatment in the presuppurative stage. If every case of hepatitis were recognized and treated the fully developed liver abscess would become a disease of only historical interest, or limited to that small class of debilitated individuals who could not be made to react to emetine treatment in the early stages of the disease.

My experience of abscess of the liver is limited to two cases; both were treated by repeated aspiration and the injection of emetine solution into the abscess cavity. Both recovered. This experience, although very small, leaves me with a very decided preference for aspirations, repeated if
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necessary, followed by the injection of a solution of emetine into the abscess cavity in place of the time-honoured open drainage operation. Secondary infection of the abscess cavity by pyogenic organisms must be common following the open operation, however much care is taken by the surgeon over subsequent dressings.

One has only to read Sir Leonard Roger's writings, and more especially his recent Lettsomian lectures, to realize the great reduction in the mortality-rate following operation for liver abscess in the Army since the general adoption of the principles of treatment so strenuously advocated by him.

OTHER COMPLICATIONS AND SEQUELÆ.

As mentioned above true appendicitis is not an uncommon complication of amœbiasis. E. P. Hagan [11] describes the microscopic and clinical characters of a case of ulceration of the appendix and Captain D. C. Scott, O.B.E., R.A.M.C., has published notes on a case from this hospital in a recent number of the Guy's Hospital Gazette.

Amœbic abscess of the brain and lung are frequently mentioned in the literature, but we have not met with examples of either of these two complications in our small series of cases. Perforation of the cæcum or elsewhere along the large intestine is also described.

JOINT COMPLICATIONS OF AMŒBIASIS.

Captain Scott had under his care in this hospital last year a very interesting case of arthritis of the left knee-joint in which active entamœbæ were found in the pus taken from the disorganized joint. Brief notes of this case are worthy of record:

Case 6.—Serjeant C. was admitted to B.S.H., Secunderabad, on March 17, 1922, complaining of pain and swelling in the left knee. He gave a history of having had severe diarrhœa with the passage of slime three years previously while on the frontier. On March 26, 1922, the knee was aspirated and about fifteen cubic centimetres of greenish viscid fluid containing a few pus cells were removed. Further aspirations were performed on April 3 and 13, 1922, without affording him any relief. The aspirated fluid was sterile in each case. From the time of admission the patient went steadily down-hill, he ran a continuous evening temperature averaging 100° to 102° F., lost weight, and was unable to sleep at night. At last his general and local condition became so bad that amputation above the knee-joint was advised and performed. The joint on being opened up subsequent to amputation was found to be profoundly disorganized with sinuses running down to the tibia and fibula. A sample of pus taken from the joint cavity contained E. histolytica exhibiting active amœboid movements. The patient was immediately given emetine injections and made an uninterrupted recovery.

I have had under my care during the past three years at least two cases who, while undergoing treatment for amœbic dysentery, developed acutely
painful and swollen joints from which a few cubic centimetres of sterile greenish fluid were removed. The patients thus affected were undergoing emetine injections and the joint condition, the ankles and knees being chiefly affected, resolved in from seven to fourteen days. Most authorities look askance at these joint complications of amoebiasis, considering them to be either complications of a co-existing bacillary dysentery or wrongly diagnosed, the giant cells commonly present in acutely inflamed joints being mistaken for *E. histolytica*.

In the case of Serjeant C., however, the amoebae were actually shown to be in an active vegetative stage, exhibiting free amoeboid movements on the warm stage; it appears extremely unlikely that these could have been confused with any form of tissue cell. References to the joint complications of amoebiasis do occur in the literature from time to time, and one author has gone so far as to describe a type of chronic osteo-arthritis due to the amoebae of dysentery.

**URINARY AMOEBIASIS.**

J. W. S. Macfie [12] records cases of this very rare complication in which amoebae were actually found in the urine.

I had one case under my care suffering from what appeared to be acute pyelitis or pyelo-nephritis, whose condition rapidly cleared up under emetine medication, although we were never able to find amoebae in his urine.

Case 7.—Serjeant G. was admitted to B.S.H., Secunderabad, suffering from acute pain and tenderness in the left loin immediately under the left twelfth rib. Pus and albumin were present in his urine. Frequent catheter specimens of his urine were taken but nothing could be grown on culture. A guinea-pig was inoculated with a sample of the urine with no ill-effect. Von Pirquet's reaction was negative. While under observation in hospital the patient's condition grew worse, he lost weight, his appetite failed, he ran an evening temperature averaging 101.0° to 103° F., the pain in his loin increased in severity and he was noted to have an area of impaired resonance and diminished breath sounds at the base of his left lung. There had now developed a small oedematous area covering about a hand's breadth with its centre over the left twelfth rib. A white blood count gave 12,000 leucocytes per cubic millimetre. He was only passing a pint of urine in the twenty-four hours although he was taking diuretics and large quantities of fluid. X-ray and cystoscopic examinations revealed no abnormality. After three weeks under observation in hospital, during which time he had gone steadily down hill, emetine injections were commenced. Immediately he started to improve and although he continued to pass a small quantity of pus in his urine he put on weight, his appetite rapidly came back, the swelling in his loin disappeared and his temperature gradually returned to the normal. He was discharged to duty a month later apparently cured.
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One is tempted in a case such as this to treat as propter hoc what may be only post hoc, and as we have no positive evidence of amœbiasis in this case we may be giving to the emetine credit which is not in reality its due.

In conclusion it only remains to be said that the type of dysentery in this station with few exceptions has been mild and complications few.

During the past three years we have had no deaths among 200 adult cases of amœbiasis treated with emetine or pulv. ipecac.

Every effort has been made by the sanitary authorities to stamp out the disease, but so far our yearly returns show no decrease and probably will not do so until our knowledge concerning the spread of amœbic dysentery becomes more complete.

REFERENCES.