Clinical and other Notes.

LEISHMANIASIS (KALA-AZAR) IN AN ADULT CONTRACTED IN MALTA.

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AND
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Leishmaniasis in Malta is almost entirely confined to children. A few cases have been reported in the Royal Navy, and during the War one or two cases were reported amongst the personnel of the Army stationed in Malta. It is possible, however, that these cases may have contracted the disease elsewhere. We understand that the disease has never been seen in adult Maltese.

The case under review, therefore, would seem to be worthy of record as the disease was definitely contracted in Malta.

Gunner S., aged 22, arrived in Malta from England in 1930. He had never been out of England before and he did not land at any ports on the journey. During his tour of duty in Malta, he was stationed continuously at Tigne Barracks, except for fourteen days at a healthy outpost in October, 1931.

Previous History.—There was an admission for sandfly fever in 1931, but no other previous history of interest.

On admission on January 21, 1932, the patient complained of not having felt fit the previous day and was then suffering from vomiting and a feeling of vague discomfort in the abdomen. Temperature 97·8° F., pulse 62. The tongue was coated and constipation was marked. No physical signs were apparent and the liver and spleen were not palpable. That evening the temperature was 102·6° F., and the vomiting was worse.

On the second, third and fourth days the patient felt better, but his temperature remained between 102° F. and 104° F., with a relatively slow pulse. An enema was necessary to relieve the constipation.

On the fifth day the temperature still remained high, but the patient felt better. The spleen was just palpable.

From the seventh day the temperature gradually fell until it reached normal on the tenth day when the patient felt fit, but the spleen was still palpable.

From the tenth to the seventeenth day there was a period of apyrexia, but the spleen could just be felt.

On the evening of the eighteenth day the temperature rose to 99° F.,
and a rise each evening continued until the twenty-seventh day. The patient felt quite well during this period and, except for an occasional attack of tachycardia and the slightly enlarged spleen, appeared well.

On the twenty-eighth and twenty-ninth days the patient suffered from headache and did not feel up to the mark. The spleen was larger.

From the thirtieth to forty-first day another wave of pyrexia occurred, the temperature rising 1.5°F. daily. During this period there was nausea, profuse perspiration and considerable prostration. The spleen gradually got larger.

On the morning of the forty-second day the temperature was normal, but rose the next evening to 104°F. From now until the fifty-second day the temperature was very irregular, the pulse-rate increased, the patient's general condition became worse and he was obviously a sick man. Numerous laboratory investigations had been made, but all without arriving at a diagnosis. The case, which at first presented a clinical picture compatible with a diagnosis of paratyphoid and later of undulant fever, both diseases not uncommon in Malta, was obviously neither, and quinine had been tried without effect. It was therefore decided to try liver puncture. On the fifty-third day the spleen was midway between the costal margin and the umbilicus, but the liver was normal in size. Liver puncture was performed and Leishman-Donovan bodies were found in the smears. The aldehyde test was carried out and gave a positive result. The temperature was recorded four-hourly from now on and showed the typical double remission every four hours.

On the fifty-fifth day a course of neo-stibosan intramuscularly was commenced. The first and second doses were 0.2 gramme and thereafter 0.3 gramme was injected into the buttocks on alternate days. Whilst this course of treatment was in progress there were increasing signs of intolerance, and on the sixty-sixth day the drug had to be discontinued as the patient's condition was so poor; he was suffering from rigors, epistaxis, continual nausea, marked pyrexia and great prostration. There was also considerable loss of weight in spite of a highly nutritious diet, to which had been added marmite, ostelin, cod-liver oil and malt, and fresh fruit juices to ensure a high vitamin content.

On the seventy-third day the signs of intolerance subsided, and the course of intramuscular neo-stibosan was continued with two doses of 0.2 gramme and two of 0.3 gramme. After each of these injections the patient had nausea and occasional vomiting, and there was a prompt rise of temperature up to about 103°F. The total amount of neo-stibosan administered was 2.6 grammes.

After the course was completed the patient began to improve for about ten days; he showed a slight increase in weight, the spleen diminished in size, he felt and looked much fitter and the temperature tended to be lower, but was still hectic.

On the ninetieth day, however, the temperature began to rise again and...
the spleen to enlarge. He was carefully watched, and as he was obviously going downhill it was decided to give him another course of neo-stibosan, this time intravenously. This course was commenced on the ninety-fourth day and the dosage for the first two injections was 0·2 gramme, and thereafter 0·3 gramme at intervals of three days. There were no signs of intolerance after any of the injections. Treatment was discontinued, however, after the injection on the 113th day; a total of 2·5 grammes had been administered and it was obvious he was deriving no benefit from it; he was losing weight again, his spleen was getting bigger and his blood-picture was becoming less and less satisfactory. During this course, on the 105th day of the disease, the patient was treated for a short time with a liver preparation, "Xorox," to try and combat the anemia. There was an almost immediate red cell response, but a big increase in the white to red cell ratio. This is well shown in the graph of the blood-picture. The red cells fell rapidly on the preparation being discontinued.

From now on the patient's condition became rapidly worse and the delayed improvement which one is told may be expected after treatment with neo-stibosan was not forthcoming. He suffered from very great prostration, tachycardia and the spleen reached the umbilicus, and on the 130th day of the disease when his condition appeared to be getting critical a course of tartar emetic was commenced.

This drug was given as 1 per cent solution intravenously on alternate days, commencing with a dose of 1 grain and working up with half-grain increases to a maximum dose of 2½ grains, which dose was continued until the end of the course. The total dosage was 29½ grains. There were no signs of intolerance. The effect was dramatic: the temperature began to fall and was normal on the 141st day and remained so, the spleen rapidly became softer and smaller and the blood-picture and general condition rapidly improved, and on the 163rd day of the disease, after 133 days of almost continuous pyrexia, he was walking about.

He was invalided to the United Kingdom on July 14, 1932.

He was brought before a Medical Board on August 15, 1932, and was found fit for duty.

LABORATORY INVESTIGATIONS.

(1) Urine.—No abnormalities were detected during the course of the disease.

(2) Faeces.—These were free from ova and cysts. Numerous cultures made in the early stages of the illness were free from pathogenic organisms.

(3) Blood Examinations.—Cultures were made on the third, sixth, thirty-fourth, forty-sixth and ninety-first days for pathogenic organisms. All remained sterile after one month's incubation at 37°C, except that taken on January 23, 1932 (the third day of the disease). This culture, at first sterile, after three weeks' incubation was found on being subcultured on to serum-agar slopes to give a fairly rapid growth of a very small Gram-negative coco-bacillus, not unlike M. melitensis. This organism, however,
did not agglutinate with *M. melitensis* or *Br. abortus* serums. Further investigations proved it to be a member of the chromogenic group of organisms.

Cultures were also made on the 125th day of illness in Locke's semi-solid blood-agar for Leishman-Donovan bodies, but no organisms were recovered; some of the cultures were contaminated.

*Widals.*—The patient's serum was put up against emulsions of *B. typhosus*, *B. paratyphosus* A, B, and C, obtained from the Royal Army Medical College; the results are shown in the table below as Standard Agglutinin Units. In view of the clinical picture in the early stages, and the organism isolated in the blood-culture made on January 23, 1932, the serum was also put up against nine different strains of *M. melitensis* and one of *Br. abortus*.

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<th>T.</th>
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<th>B.</th>
<th>C.</th>
<th>MM.</th>
<th>Br. A</th>
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The patient's blood was also tested with Huddleton's strong emulsion of *M. melitensis* for evidence of undulant fever on several occasions before the diagnosis of Leishmaniasis was established, but it always gave negative results.

*Blood-counts.*—The summary of all counts carried out is shown in Table II; these are also shown graphically in Fig. 1.

No malaria parasites or Leishman-Donovan bodies were seen at any time.

It will be noted that the findings present almost a book picture.

*Liver puncture* was made on the fifty-third day, and Leishman-Donovan bodies were found in large numbers in the smears. Culture was not attempted as the material obtained was scanty, and the patient's condition did not warrant unnecessary interference.

*Aldehyde Test.*—This test was not carried out until after the diagnosis was established by liver puncture. It was subsequently carried out on four occasions, and was strongly positive each time; the last test being made just before the departure of the patient for the United Kingdom.

The most noticeable points in the case are:—

1. The almost immediate recovery in the hæmoglobin and red-cell picture after the treatment with antimony tartrate was commenced.

2. Immediate jump in the number of red cells and improvement in the red-cell picture within twenty-four hours of the first dose of "Xorox," together with an increase in the hæmoglobin percentage, but accompanied by a fall in the white cells to their lowest point which caused a very low white to red cell ratio.

3. The rapid fall in the red cells after "Xorox" was stopped.

4. The low figure of five per cent for polymorphonuclear leucocytes on April 14, 1932.
(5) The fact that the number of white cells and the white to red cell ratio were about normal when the disease was sufficiently well established for the recovery of Leishman-Donovan bodies in liver puncture.

(6) The neo-stibosan could not be pressed in the first course owing to the marked intolerance, and although there were no signs of intolerance in the second dose no progress was made.
### Table II.—Summary of Blood Counts.

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<th>Date</th>
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<th>R.B.C.</th>
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<th>Ratio R.B.C.: W.B.C.</th>
<th>Colour index</th>
<th>Polymorphs</th>
<th>Large lymphocytes</th>
<th>Small lymphocytes</th>
<th>Monocytes</th>
<th>Eosinophiles</th>
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(7) The immediate improvement after tartar emetic was given.

We have to thank Dr. Adler who saw the patient on the 125th day and suggested that as he appeared to be neo-stibosan fast, a course of tartar emetic should be tried.

We have also to thank Surgeon-Lieutenant Commander Rainsford, Royal Naval Hospital, Malta, for help in the laboratory investigations, and Lieutenant-Colonel B. Johnson, D.S.O., R.A.M.C., for permission to forward these notes for publication.

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**MINERS' NYSTAGMUS AND "SHELL SHOCK."**

By Lieutenant-Colonel R. M. DICKSON, O.B.E.,

Royal Army Medical Corps.

The Medical Research Council recently published the third report of the Miners' Nystagmus Committee.

In this report a more extended examination has been made of the nervous or psychological factors which play an important part in the disability.