

State on Admission.—Medical advice was not sought by the parents until May, when they were alarmed by the increasing pallor and protuberant abdomen. The child was first seen by Dr. Agnes Murphy, who referred to me for a general examination of the blood, with a view to determine, if possible, the cause of the anæmia. The blood finding was as follows: Blood smear, extremely watery, almost invisible; hæmoglobin (Gowers' hæmometer) about fifty per cent; total white count 7,000.

Differential count:—

Polynuclears	37
Mononuclears	38
Large mononuclears	25
Others	—
	100

Parasites.—*Leishmania infantum* bodies in large endothelial cells (twenty counted in one cell), in large mononuclears, and free.

The reds were not appreciably altered.

The abdomen was very large, and the spleen, which was hard and with a well-defined notch, was largely responsible for the enlargement.

The parents were advised to bring the patient to hospital for admission, but they did not consent until later, when the child developed broncho-pneumonia.¹

Treatment and Progress.—As soon as possible after the diagnosis was established, the patient was treated with organic antimony, the compound used being acetyl-P-aminophenyl stibiate of sodium as prepared by Messrs. Allen and Hanburys under the name of stibenyl, given intramuscularly in progressive doses, beginning with 0.05 gramme.

After the fourth dose the splenic enlargement showed appreciable reduction, and the death-like pallor also improved somewhat. The patient, however, succumbed to the complication above referred to within a week of its development.

A NOTE ON FOUR CASES OF INFECTION WITH *BACILLUS FÆCALIS ALKALIGENES*.

By MAJOR O. P. WATSON.
Royal Army Medical Corps.

Although *Bacillus fecalis alkaligenes* is stated to be usually non-pathogenic, disease due to this organism is recognized and is fully described in Castellani and Chalmers' "Manual of Tropical Medicine," and the following note is written because in two, at any rate, of the cases under notice, bacteriological and serological findings give rise to the suspicion that *B. fecalis alkaligenes* may not have been

¹ As other instances of secondary infections in leishmaniasis have come to my notice I should like to quote here my experience of the same disease in Northern India among a few European soldiers similarly affected.

In these cases (about eleven patients in all) the most common infection was *Bacillus pyocyaneus*, apparently of intestinal origin. This organism was isolated from blood and urine. One case was so markedly similar to enteric fever that the patient actually found his way to an enteric convalescent depot.

Pyocyaneus infection is very common in some parts of North India and certainly responsible for septicæmias and a form of dysentery.

the true cause of the disease, although isolated from the blood: and it seems desirable that full investigation should be made in other cases of this infection.

The cases under notice were three British soldiers and one Jemadar of the Indian Army. From the blood of all four men *B. faecalis alkaligenes* was isolated in the Mhow Divisional Laboratory and subsequently confirmed at the E.F.C. Depot, Naini Tal.

Two of the British soldiers were stationed at Jhansi and the third apparently contracted the disease at Nagpur. The Jemadar was stationed at Mhow.

CASE 1 (BRITISH SOLDIER).

Clinically the case belonged typically to the enteric group. There was continued pyrexia for eighteen days, reaching 104° F. during the first week, then becoming remittent in type and falling by lysis, followed by a typical relapse lasting three weeks in which the temperature ran somewhat lower than the first bout. Abdominal distension and rose spots were present.

At the E.F.C. Depot his serum agglutinated *B. paratyphosus* "A" in a dilution of 1 in 2,000. Eight months later the agglutination with para "A" had dropped to 1 in 100, the agglutination with *B. faecalis alkaligenes* being 1 in 20.

CASE 2 (BRITISH SOLDIER).

Suffered from initial pyrexia of fourteen days, falling by lysis and immediately followed by a remittent low pyrexia lasting for fifty-two days and terminating on the aspiration of ten ounces of clear fluid from the chest. In the initial attack there was abdominal discomfort, no rose spots or obvious enlargement of spleen. Benign tertian parasites were found in the blood at the beginning of the attack and again after aspiration of the chest, when there was typical malarial pyrexia with sharp rise on the first and third day.

Agglutination reactions carried out at E.F.C. Depot were as follows:—

	T.	A.	B.	B.F.A.
(1) 4½ months from beginning of disease	500	100	20	40
(2) 5½ " " " " "	160	80	20	20

CASE 3 (BRITISH SOLDIER).

This case is of great interest as he has eventually been found to be secreting *B. typhosus*, thus strengthening the suspicion, already aroused by the serological reactions of the two preceding cases, that *B. faecalis alkaligenes*, although isolated from the blood, may not have been the causative agent of the disease.

The temperature chart of this case was one of typical uncomplicated typhoid fever, with continued pyrexia for twenty-three days falling by lysis and followed by apyrexia broken only by one malarial bout, when benign tertian parasites were found in the blood. There is no suggestion in the chart of any superimposition of infection.

The fever was accompanied by diarrhoea, but there were no rose spots or splenic enlargement. A dicrotic pulse was noted and the pulse and temperature ratio was markedly low, e.g., temperature 104° F., pulse 90.

The serological reactions as tested at the E.F.C. Depot are as follows:—

	T.	A.	B.	B.F.A.	Own organism (T.)
(1) 2½ months after beginning of disease	1,000	250	250	—	—
(2) 3½ " " " "	500	100	20	20	1,000
(3) 4½ " " " "	500	50	20	20	1,000
(4) 5½ " " " "	500	50	Nil	—	500

He passed *B. typhosus* uninterruptedly in the stools for seventy-six days after arrival at the E.F.C. Depot, the last occasion being on January 14, 1921. Since then this organism has not been isolated, but on one occasion, January 25, 1921, *B. fæcalis alkaligenes* was isolated. A blood culture was then made, with negative result.

It is possible that this man may have been a carrier of *B. typhosus* all along. But there is no history pointing to a previous attack of enteric fever, the excretion of *B. typhosus* seems now to have stopped, and here again the serological reactions are suggestive.

CASE 4 (JEMADAR M.).

Suffered from pyrexia for twelve days with diarrhœa. The spleen was palpable on deep inspiration. There was slight jaundice. Clinically this case does not appear to have been typical of any specific disease.

Serum received three-and-a-half months after the beginning of the disease at the E.F.C. Depot gave the following agglutinations.

<i>B. fæc. al.</i> (own organism)	<i>B. typhosus</i>	<i>B. para "A"</i>	<i>B. para "B"</i>
40	80	20	Nil

The low degree of agglutination of *B. fæcalis alkaligenes* by the sera of the above cases is noticeable and some control agglutinations with sera of men at the E.F.C. Depot were carried out for comparison, the results being as follows:—

				Agglutination
(1) Convalescent typhoid	.. .. .	.. .. .	.. .. .	Nil
(2) " " "	.. .. .	.. .. .	.. .. .	20
(3) " " Para "A"	.. .. .	.. .. .	.. .. .	20
(4) " " " (Serologically)	.. .. .	.. .. .	.. .. .	40
(5) " " Enteric group	.. .. .	.. .. .	.. .. .	20
(6) " " " "	.. .. .	.. .. .	.. .. .	Nil

These reactions correspond closely with those of the cases in which *B. fæcalis alkaligenes* had been isolated from the blood. In all the above reactions the organism employed was that isolated from Jemadar M.

In the first three cases noted the question arises: was *B. fæcalis alkaligenes* really the pathogenic organism or merely a concomitant of another organism of the enteric group.

Possibly *B. fæcalis alkaligenes* already present in the intestine is stimulated to increased activity by the presence of other organisms of the enteric group, as is known to happen with *B. coli communis*, and so gains admission to the blood stream.

If *B. fæcalis alkaligenes* was really the pathogenic organism in these cases, the low agglutinating power of the sera for this organism is striking.