Four hours later a definite purplish-red macular rash appeared on the thighs. Tick typhus was now suspected, but it was decided to await the result of agglutination reactions before giving chloramphenicol.

Next day her condition had deteriorated considerably; she was semi-comatose, incontinent, and dehydrated. The rash had spread all over the trunk and proximal parts of the limbs, being haemorrhagic in the flexures. Chloramphenicol, 1 g. four-hourly, was begun, and was fairly well retained, the dose being repeated when necessary. Intravenous fluids were given. After 48 hours, though the patient was still very ill, the rash had faded and the temperature fallen abruptly to subnormal levels. By the fifth day appetite had returned and mentality was normal. Chloramphenicol was discontinued after 22 g. had been given.

The agglutination reactions were as follows:

	OX 2	OX K	OX 19
Day of admission	1/50	Nil	Nil
Fourth day	1/250	Nil	1/125
Thirteenth day	1/320	1/40	1/80
Twenty-first day	1/160	1/20	1/40

Convalescence was rapid and uneventful, though the eschar took three weeks to heal completely.

COMMENT

The definite eschar, combined with the rise in OX 2 agglutination, strongly suggests a tick-borne infection picked up in Curaçao rather than one of the Rocky Mountain spotted type acquired on the American mainland. The dramatic effect of chloramphenicol is well shown; also the occurrence of a leucocytosis (Machiavello, 1951) rather than the leucopenia described by earlier writers. This case illustrates the advisability of starting specific therapy without awaiting laboratory confirmation of the diagnosis.

My thanks are due to Mr. Whittaker, M.I.L.T., who carried out the pathological investigations; also to Lieut-Colonel H. J. Bensted, Director of the Public Health Laboratories at Colindale, who kindly confirmed the agglutination reactions.

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Infective Endocarditis Due to *Bact. Faecalis* *Alcaligenes*

While some micro-organisms are obligatory pathogens and always associated with definite illness, others are normally harmless commensals that become pathogenic only in special circumstances and in special sites. Well-known examples of the latter type are *Bact. coli*, harmless in the bowel but sometimes migrating to the renal tract and causing pyelitis, and *Streptococcus viridans*, occurring naturally in the mouth but causing a transient bacteraemia after dental extraction (Okell and Elliott, 1935) and settling down on deformed or injured heart valves to cause an endocarditis.

Bacterium faecalis alcaligenes (Petruschky) is a normal habitant of the intestinal tract of man, and therefore is likely to be a contaminant of blood and other cultures. On the other hand, it has been blamed for fever of the enteric type (Wilson and Miles, 1945; Strong, 1945; Stitt, Clough, and Branham, 1948). Confirmation of the pathogenicity has been suggested by the agglutination of the organism by the patient's serum up to a dilution of 1:50 (Stitt *et al.*, 1948). All intestinal organisms may on occasion pass from the lumen of the bowel into the blood stream, where they are destroyed. It is, however, possible to imagine a transient bowel bacteraemia with the organisms settling on a damaged heart valve just as the streptococci from teeth have been shown to do. This seems to have happened in the following case.

CASE REPORT

A married woman aged 54 had had heart disease in childhood arising from previous rheumatic fever. She had also had pneumonia three times, at the ages of 10, 49, and 52.

Since 1943 she had had diabetes, controlled by diet, 20 units soluble insulin in the morning, and 20 units P.Z.I in the evening. She had a particularly severe attack of subtertian malaria in May, 1950.

On July 5, 1950, she had a sudden attack of nausea and vomiting, followed by continued irregular fever, 100–102° F. (37.8–38.9° C.), with nausea and occasional shivering. Her blood was free of malaria parasites, and antimalarial treatment did not help her. After a fortnight she was admitted to hospital, pale, ill, and tired-looking. There were bruises on her arms at the site of the insulin injections.

Examination showed throat not inflamed, no enlarged glands; pulse rapid, 110 per minute; heart enlarged, apex 4½ in. (11.4 cm.) out in the sixth space; mitral systolic murmur not conducted out; ringing accentuated second sound along left sternal border. In the aortic area there were a slight thrill, a harsh noisy systolic murmur conducted up into the neck, and on leaning forward a diastolic murmur. Blood pressure, 118/90 mm. Hg, showed low pulse pressure. There were moist rales at both lung bases. There was generalized abdominal tenderness, but the liver was not palpable. There was no finger-clubbing.

A blood count showed: Hb, 66%; erythrocytes, 3,600,000; leucocytes, 13,800 (81% polymorphs). Blood slide showed no malaria parasites. Urine contained a trace of albumin.

The fever, leucocytosis, and severe toxæmia resembling a septicaemia in a person who gave evidence of valvular disease suggested that the diagnosis must be bacterial endocarditis; blood cultures were accordingly taken.

Bacteriology.—On July 20 two blood cultures were taken, and both yielded a pure growth of a Gram-negative vibrio-like organism. The organism failed to ferment lactose, glucose, mannite, saccharose, and dulcitol. It failed to form indole and was actively motile. Litmus milk was rendered strongly alkaline. It therefore possessed the characters of *Bact. faecalis alcaligenes*. The patient's serum agglutinated the H suspension of the isolated organism to a titre of 1 in 2,560. No agglutination occurred with the O suspension. Six normal sera were set up as controls and no agglutination took place.

Progress.—July 23: No clinical improvement after three days on penicillin, 600,000 units twice daily. Blood culture positive. July 26: Chloramphenicol, 3 g. followed by 0.25 g. four-hourly, started. Blood culture positive. July 31: Condition worse, temperature swinging to 104° F. (40° C.). Liver enlarged and tender. August 1: Blood culture negative. August 5: No improvement. Streptomycin, 1 g. daily, and sulphadiazine, 1 g. four-hourly, begun. August 10: Temperature almost normal, blood culture sterile, sulphadiazine stopped. August 15: Temperature still normal, but general condition deteriorating. August 17: Blood culture sterile. August 23: Blood culture positive, leucocytes 24,000 per c.mm. (polymorphs 93%). August 26: Death.

Necropsy.—Permission was granted for only a limited and hurried examination. The heart showed excess fluid in the pericardial sac, and both ventricles were enlarged, especially the left. The aortic valve had lost its structure, and consisted of an opening about 5 mm. in diameter through warty vegetations growing on both sides of the septum. The mitral valve was normal. There were no infarcts in the kidneys or spleen. *Bact. faecalis alcaligenes* was isolated in pure culture from the spleen, but the pericardial fluid was sterile.

Our thanks are due to the Director of Medical Services, Tanganyika, for permission to publish.

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