SPIROCHAETOSIS ICTEROHAEMORRHAGICA
IN NORFOLK.

BY

F. W. BURTON-FANNING, M.D.CANTAB., F.R.C.P.,

AND

A. J. CLEVELAND, M.D.LOND., F.R.C.P.,

PHYSICIANS TO THE NORFOLK AND NORWICH HOSPITAL.

DURING the last fifteen months we have seen four cases in Norfolk presenting the clinical features of spirochaetosis icterohaemorrhagica. Though the actual presence of the spirochaete was only proved in one, the symptoms and course of the disease were so similar and distinctive in all that we think we may assume the identity of their affection. The organism is acknowledged to be elusive, and we had no opportunity for animal inoculation. A closely studied series of eighteen cases in East Lothian has been described by G. L. Gulland and G. Buchanan,¹ but in England we find the record of only one case, by Dr. Philip Manson-Bahr.²

The cardinal symptoms of the disease are so few and so constant as manifested by our patients that a brief account of each will be given.

CASE I.

A man living in the outskirts of North Walsham, who had retired and occupied himself in his garden, was in good health until December 9th, 1924. On that day he felt exhausted and unable to eat. For the next few days he remained in bed on account of this sense of prostration.

On December 13th he was seen by Dr. J. Shephard and later by Dr. D. Hart and one of us. The temperature was 101°, the pulse was 80, and the tongue was dry. On the following day jaundice was perceptible; the temperature was 99° and pulse 70.

On December 15th the temperature was 97.6° and pulse 60. But the jaundice had increased and the tongue was more dry.

On December 18th no urine was passed; the excretion had been diminishing previously. Haematemesis recurred every few hours.

On December 19th the condition was obviously grave; no urine was passed and haematemesis persisted. The temperature was 97, pulse 60, and the blood pressure 120.

On December 20th death took place somewhat suddenly. There had been suppression of urine for three days and melaena occurred. The liver and spleen had never been palpable.

CASE II.

A tramp, aged 26, was admitted to the Norwich Poor Law Infirmary on May 3rd, 1925. He had been taken suddenly ill four days previously with prostration, headache, and dizziness.

On admission he was jaundiced, with epigastric tenderness, vomiting, and slight fever. The urine contained albumin and bile, but leucin and tyrosin were not present.

On May 6th jaundice was more marked, the tongue was dry, and he was drowsy. On May 10th there was epistaxis, and on May 13th he gradually sank and died.

Widal's reaction for the typhoid group was negative. No spirochaetes or other organisms were found in the urine, but the examination was not made of freshly passed urine. Blood drawn from the liver after death showed no spirochaetes.

CASE III.

A farmer, aged 57, living in an isolated house a few miles from Fakenham, whose previous health had been good, was taken ill with general pains and chilliness on December 16th, 1925.

On December 17th he was seen by Dr. E. W. Palin, who found a temperature of 102°, pulse 100, and tenderness in the upper abdomen. During the next three days there was no marked change.

On December 21st no urine had been passed, and the bladder was found to contain only one drachm, which was free from albumin. The temperature fell to 98°, pulse 80. The next day slight jaundice appeared and there was frequent vomiting, the contents becoming coffee-grounds.

On December 23rd the jaundice had deepened and there were haematemesis and melaena. On December 24th there was also free epistaxis. After three days' suppression some non-albuminous urine was passed.

During the next few days the urine was excreted, but the jaundice deepened and haemorrhage from the stomach, bowel, and nose persisted.

He died on December 27th. After his death his wife remembered that on December 10th he had been scratched or bitten on the face by a rat. No mark, however, was left.

CASE IV.

A fowl-dealer, aged 53, from Hindolvestone, was sent to the Norfolk and Norwich Hospital by Dr. G. S. Keeling of Attleborough on January 23rd, 1926.

On January 14th there had been sudden onset of illness with general pains and rise of temperature, though an exact record

was not kept. On January 18th there was epigastric pain, relieved by vomiting, and hiccup. On January 19th jaundice was noticed; the liver and spleen were not enlarged.

On January 23rd the temperature was 97°, with pulse 92. The urine contained albumin and much blood. There were petechial haemorrhages about the skin. On January 26th profuse epistaxis occurred.

On February 2nd spirochaetes were found in the urine. From February 3rd to 18th the evening temperature was 99.4° to 100°, but gradual improvement was taking place, and on February 25th he was discharged convalescent.

In their important account of the disease Dawson, Hume, and Bedson³ give as noteworthy features of spirochaetosis icterohaemorrhagica the following:

"A sudden onset with gastro-intestinal symptoms and high fever, the marked prostration, the occurrence of melaena and haemoptysis, the presence of haemorrhagic herpes, the appearance of jaundice on the fifth day, the fall of temperature at the end of eleven days, and the finding of typical spirochaetes in the urine."

Our four cases conformed closely to the above description in most particulars, but not in all. Our patients were attacked suddenly and prostration was extreme. With remarkable punctuality jaundice appeared on the fifth or sixth day. Haemorrhage from various parts occurred later with remission of fever. Herpes was absent in our cases. Renal symptoms were much more prominent. In two cases there was suppression of urine, though in one of these the excretion was re-established before death. Dawson, Hume, and Bedson refer to the fact that French authors "lay considerable stress on the evidences of renal insufficiency."

This suppression of urine obviously contributed largely to the fatal termination, and moreover prevented the confirmation of the diagnosis by the detection of spirochaetes in the urine. In our other cases there was albuminuria and in one of these there was haematuria. In Case iv the patient's general condition was very different from that of the others; he was never very ill, and haematuria was the chief renal affection.

The greatest contrast was in the gravity of the disease as we met it, for whereas Dawson, Hume, and Bedson estimate the mortality as from 4 to 5 per cent. amongst their cases seen in France during the war, of our four cases three died. There has been a remarkable disparity of mortality figures amongst foreign observers. We did not have the opportunity of using the antispirechaetal serum prepared for the Medical Research Council.

Dr. David S. Brough, assistant pathologist to the Norfolk and Norwich Hospital, kindly supplies us with the following information with regard to Case iv.

February 2nd.—A catheter specimen of urine was found by dark-ground illumination to contain spirochaetes in centrifuged deposit. They were numerous and as many as eight or ten could be distinctly seen in one field. Their spirals were more open and less regular than those of *S. pallida*, and their movement was slow and aimless. Some of the spirochaetes showed a certain amount of hooking of their ends. Spirochaetes continued to be found on each of the three following days, but at the end of five days had disappeared. Observations were made to ascertain the length of time during which spirochaetes could be recognized in the urine after its passage. It was found that at the end of twenty-four hours the spirochaetes were becoming granular and somewhat blurred, and after seventy-four hours were no longer to be recognized. Spirochaetes were not found in the blood.

Van den Bergh's Test.—Serum: (1) Biphasic reaction; (2) faint indirect action; (3) no direct action.

Blood Count.—Red blood cells 3,500,000 per c.mm., white blood cells 14,600, haemoglobin 42 per cent., colour index 0.6. Differential count: polymorphs 78 per cent., lymphocytes 16 per cent., mast cells 3 per cent., mononuclears 3 per cent.

To verify our idea that this disease is rarely recognized as a cause of death in England we applied to the Registrar-General, who informed us that in the four years 1922 to 1925 there had been seven deaths in England classified as spirochaetosis icterohaemorrhagica in addition to our own cases.

There was no possible connexion between our four patients. They were all country dwellers, but none had been working in particularly damp places, nor was it clear that their areas were especially infested by rats, the recognized carriers of this disease.

REFERENCES.

¹ BRITISH MEDICAL JOURNAL, 1924, i, p. 313. ² *Lancet*, November 18th, 1922. ³ BRITISH MEDICAL JOURNAL, 1917, ii, p. 345.