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MEDICAL MEMORANDA

Fatal Paralytic Ileus due to Strongyloidiasis

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Strongyloidiasis is a chronic intestinal infection caused by the nematode *Strongyloides stercoralis*. It is widespread in tropical countries and is brought to temperate areas by immigrants. Infestation is usually asymptomatic but may produce rashes, abdominal pain, diarrhoea, anaemia, and malabsorption. A rare complication is paralytic ileus, which may present as a surgical emergency. Only one such case appears to have been reported from Britain; the diagnosis was not made during life. A further case is reported here, together with typical *x*-ray appearances of the upper small bowel.

Case Report

A 32-year-old Jamaican man was admitted to hospital with a two-week history of central abdominal pain, vomiting, and diarrhoea. He had anorexia and had recently lost weight. His motions had been unduly dark. Previously he had been well, had resided in England for 12 years, and had not returned home during that time.

On examination he was wasted and dehydrated. There was no abdominal tenderness or distension, and bowel sounds were present. The haemoglobin level fell shortly after admission from 11·0 to 8·6 g/100 ml. The W.B.C. was 14,500/mm³ (10% eosinophils). A barium-meal examination (see Figs. 1 and 2) showed dilatation, rigidity, and ulceration of the whole of the duodenum, with the

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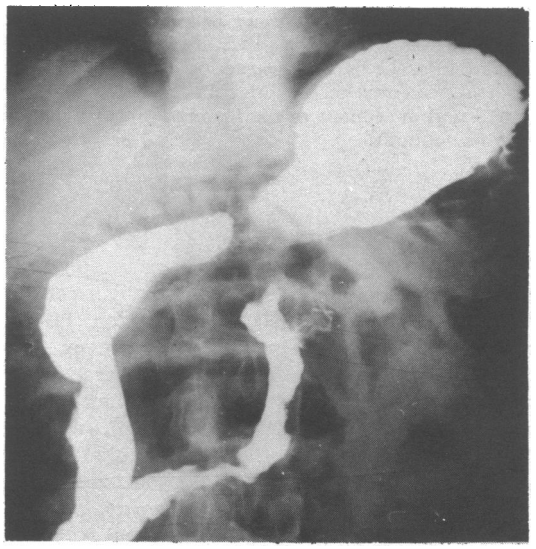

FIG. 1—Strongyloidiasis. Barium-meal study of duodenum.

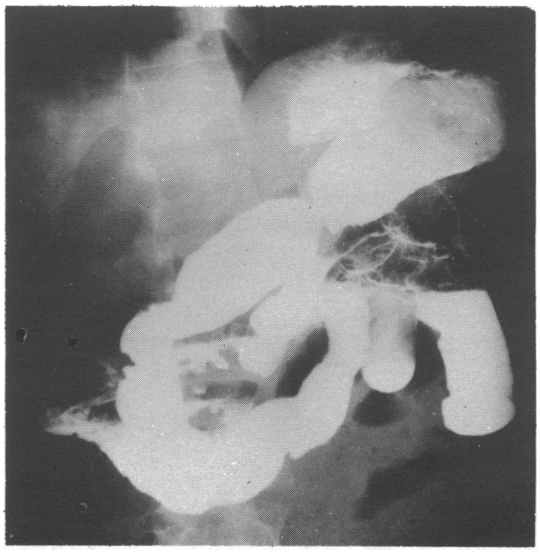

FIG. 2—Barium-meal study of upper jejunum.

appearance of partial obstruction in the proximal jejunum. The remainder of the jejunum was also dilated, with greatly delayed transit.

He was initially treated with blood transfusion, intravenous fluids, and gastric suction. At laparotomy there was a paralytic ileus, the duodenum and upper small bowel were distended and thickened, and there were very large discrete lymph nodes in the mesentery. There was no mechanical obstruction in the bowel.

A lymph node biopsy specimen was taken, and the abdomen was closed. Histology of the specimen showed the filariform larvae of *S. stercoralis*, and the diagnosis was confirmed by finding large numbers of Strongyloides worms and larvae in the duodenal aspirate.

Postoperatively the patient was initially treated with steroids in the hope of reducing inflammatory oedema and restoring function, as he was thought to have a reticulosis or granulomatous condition of the bowel. This treatment was changed to intragastric thiabendazole when the histological results became known. He was also treated with intravenous feeding, gastric aspiration, and systemic ampicillin. He remained in paralytic ileus, however, requiring up to 8 litres a day of fluid replacement, and he died suddenly seven days after operation. Blood cultures had been sterile. There were no clinical features of septicaemia or meningitis, and a terminal pulmonary embolus was suspected.

Necropsy confirmed the operative findings in the abdomen. Larvae were identified microscopically in the mucosa of the duodenum and jejunum in large numbers, and occasionally in the liver and lungs. There was no sign of pneumonia or pulmonary embolus. There was a small localized area of purulent exudate in the subarachnoid space over the posterior aspect of the cerebellum, from which a swab was sterile on culture. A few Gram-negative bacilli were found in sections of the meninges in this area, but their significance was doubtful.

Comment

Usually filariform larvae of *S. stercoralis*, which can penetrate human skin, develop in the soil from rhabdoid larvae which have been passed per anum. In addition, however, there is an "autoinfective" cycle where the rhabdoid larvae evolve into filariform larvae in the intestine. These can then penetrate the intestinal wall to reach the mesenteric lymph nodes and the liver. This cycle may explain the infestation in persons who have long since left an endemic area, as occurred in the present patient who had been in England for 12 years.

Malabsorption due to strongyloidiasis is well recognized, but severe invasive disease with paralytic ileus is a rare complication. Nolasco and Africa (1936) and Wilson and Thompson (1964) each reported a fatal case, the diagnosis being made at necropsy. The latter is the only previous case reported from Britain. Bras *et al.* (1964) described 10 cases of *S. stercoralis* infestation in Jamaicans of whom five presented with paralytic ileus.

The probable cause of the ileus is an inflammatory reaction to the larvae as they migrate through the bowel wall into the mesenteric glands. In this migration the larvae may carry coliform bacteria with them, and the importance of *Escherichia coli* septicaemia and meningitis has been stressed, particularly in fatal cases (Brown and Perna, 1958; Wilson and Thompson, 1964; Walker-Smith *et al.*, 1969). Bacterial dissemination clearly featured in the present case before treatment, although there is no evidence that it was a major factor in the patient's death.

The radiological appearance of the duodenum is often characteristic and may show the diagnosis, especially when associated with eosinophilia. Paterson (1958), Milner *et al.* (1965), and Louisy and Barton (1971) described similar changes to those reported here. Differentiation must be made from lymphoma, Crohn's disease, tuberculous enteritis, Schönlein-Henoch purpura, and mesenteric vascular disease of the small bowel.

Thiabendazole offers specific therapy, but difficulties arise as it is administered by mouth, and in cases of paralytic ileus it might not be transported along the intestine or absorbed.

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