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Strongyloidiasis: a mistaken diagnosis and a fatal outcome in a patient with diarrhoea

Shireen Rahim, Yasmin Drabu, Ken Jarvis, David Melville*

North Middlesex Hospital, Edmonton, London N18 1QX, UK

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Summary A patient who died in the UK from *Strongyloides* infection, which he had contracted in the West Indies, is described. The diagnosis was not suspected initially because he had not been forthcoming about his origins. The infection was more severe because the patient was also infected with the human T cell leukaemia/lymphoma virus type 1 (HTLV-1) and this may explain why the infection with *Strongyloides* was fatal. The features of the case are outlined to help other clinicians faced with such a patient.

1. Introduction

A 59-year-old West Indian man presented to the outpatient department of the North Middlesex Hospital, London, UK, with a three-month history of diarrhoea and weight loss. In the referral letter, his general practitioner noted that the patient had not seen him during the past seven years. The patient denied recent foreign travel. He was thin, but looked otherwise well and sigmoidoscopy revealed mild colitis. A rectal biopsy was taken, the patient was given a pot to collect a stool specimen for microbiological assessment, and a full blood count and liver function tests were performed. The patient was started on steroids and asked to return in ten days for a gastroscopy and colonoscopy.

2. Diagnosis

Histology and colonoscopy confirmed the diagnosis of mild active chronic ulcerative colitis. Because of his weight loss, his low serum albumin (13 g/l; normal >35 g/l) and his lack of response to treatment, he was admitted to hospital. He continued to deteriorate over the next three days. He developed a dilated, atonic small bowel with dehydration and septicaemia. Fluid balance became increasingly difficult to maintain, and he developed difficulty in breathing with bilateral pleural effusions. He was admitted to the intensive care unit on the third day for mechanical ventilation and died there two days later. At this point, it became apparent that

* Corresponding author. Present address: St George's Hospital, Blackshaw Road, London SW17 0QT, UK. Tel.: +44 208 725 0121; fax: +44 208 725 0115.
E-mail address: david@melville.clara.co.uk (D. Melville).

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the patient had retired to the Caribbean several years earlier and had since been resident there. The stool specimen was examined while the patient was in intensive care and showed evidence of *Strongyloides stercoralis* infection. The laboratory had not processed the stool sample earlier because the specimen was received without a request form.

Because *Strongyloides* had been identified in the stool specimen, the histopathologist re-examined the rectal biopsy and found evidence of *Strongyloides* underlying the colitis. A post-mortem assessment of a stored sample of the patients' blood also indicated infection with the human T cell leukaemia/lymphoma virus type 1 (HTLV-1).

Strongyloides stercoralis is a soil-transmitted intestinal nematode that infects humans. It was first discovered in 1876 in French soldiers who were repatriated from Viet Nam with severe diarrhoea (Grove, 1989). It is endemic in the tropics, with a prevalence of around 100—200 million cases (MacSween and Whaley, 1992). Infection with *Strongyloides* usually produces no symptoms or mild non-specific gastrointestinal symptoms. The parasite can be carried silently in the gut for many years and up to 20% of British ex-servicemen who were prisoners of war in Burma in the Second World War carried *Strongyloides* in their bowel.

Hyperinfection syndrome is a potentially lethal manifestation of *Strongyloides*, and it occurs when there is invasion of the bowel mucosa by the parasite and dissemination through the body via blood and lymph. Studies have linked hyperinfection with various immunosuppressive conditions such as malignant tumours, severe malnutrition (Purtilo et al., 1974), steroid therapy (Cruz et al., 1966) and organ transplantation (Phelps, 1993), as well as concomitant HTLV-1 infection (Gotuzzo et al., 1999; Newton et al., 1992; Phelps, 1993), as in this case. HTLV-1 and *Strongyloides* are both endemic in certain areas of the Caribbean and Japan.

HTLV-1 was the first pathogenic retrovirus to be identified in humans. It is endemic in the tropics where the seroprevalence varies between 1 and 20% of the population. It is found in 1—4% of people in the UK of Caribbean origin. It is associated with a 1% lifetime risk of developing adult T cell leukaemia/lymphoma.

3. Discussion

This was a particularly sad case because it is likely that the diagnosis would have been made much earlier if the patient had been known to be living in the tropics. He could then have been treated with thiabendazole and not steroids, and he would have avoided the hyperinfection state which killed him.

It is true that the stool was sent for examination. But microbiology departments do not look routinely for ova, cysts or parasites unless specifically requested. Hence, even if the form had not been separated from the stool sample, the worm might still not have been detected.

The doctor—patient relationship is based on trust. It seems most likely that the patient thought that he would not be able to gain treatment on the UK NHS if his true background were made evident. In practice, few clinicians check whether their patients are entitled to free treatment, but rather concentrate on the patient's clinical problem. However, our patient probably did not realize this.

Although this condition is unusual in UK residents, it is important to remember it in the differential diagnosis of colitis (Al Samman et al., 1999; Weight and Barrie, 1997), especially in patients with any history of foreign travel, even if this was decades before the presenting illness. It is also worth testing for HTLV-1 in any patient who presents with *Strongyloides* hyperinfection, and in those with intestinal strongyloidiasis who fail to respond to courses of anthelminthics.

Conflicts of interest statement

The authors have no conflicts of interest concerning the work reported in this paper.

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