

Relapse of amoebic infection 10 years after the infection

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A 52-year-old man with schizophrenia, who had a history of amoebic liver abscess treated with combination antimicrobial agents, presented 10 years later with severe rectal bleeding. Diagnosis of amoebic colitis was confirmed by histological examination of endoscopic biopsy. Doctors treating patients with amoebic infection should be aware of the risk of eradication failure. Post-treatment stool testing, preferably by antigen testing or polymerase chain reaction, should be performed after antimicrobial treatment.

Introduction

Amoebic infection is an uncommon infection in a modern industrialised society such as Hong Kong. Although amoebic infection is rare, it is potentially fatal if the diagnosis is not made promptly and appropriate treatments are not given in the early stage of the disease. Traditionally, the diagnosis of acute amoebic infection is made by a history of travel to an endemic area and identification of the organism in the stool. However, with the vagaries of presenting history and the lack of a sensitive stool test in most centres in Hong Kong, the diagnosis remains challenging. We report on a patient with a relapse of amoebic colitis 10 years after the initial infection. The pitfalls of diagnosis and management of amoebic infection are discussed.

Case report

A 52-year-old Chinese man presented to the Department of Medicine, Tuen Mun Hospital, Hong Kong, in March 2010 with fever and bloody diarrhoea for the previous few days. He was a social drinker and was not homosexual. He had been employed as a seaman, but he retired early as he had had schizophrenia since 1998. In August 2000, he had been admitted to another hospital for fever and diarrhoea. Laboratory investigations showed neutrocytosis and elevated liver enzymes. Ultrasound examination revealed a 6-cm mass over segment 8 of the liver. Ultrasound-guided aspiration of the mass content yielded amoebic organisms. He was treated with a 2-week course of oral metronidazole and diloxanide. Follow-up ultrasound examination performed 6 months later confirmed completed resolution of the liver lesion. No colonoscopy was performed during this period.

At admission to Tuen Mun Hospital 10 years later, he was mildly dehydrated. He had mild tenderness over the periumbilical region without any peritoneal signs. Per rectal examination showed blood-stained stool with mucus. Laboratory investigation showed the following results: haemoglobin 109 g/L (reference range, 134-172 g/L), sodium 148 mmol/L (136-145 mol/L), potassium 3.9 mmol/L (3.5-5.1 mmol/L), and C reactive protein 86.3 mg/L (reference level, <5.0 mg/L). He started oral ciprofloxacin 1 g daily and intravenous fluid replacement. Stool samples for microscopy, viral study, bacterial culture, and *Clostridium difficile* cytotoxin analysis were all negative.

As his dysenteric symptoms did not respond to medical therapy, colonoscopy was performed 1 week after symptom onset, which revealed multiple patchy necrotic ulcers over the entire colon. The ulcers were covered with purulent exudation with contact bleeding (Fig 1). Histological examination of the colonic specimen showed amoeba organisms in the ulcer debris (Fig 2). Serum amoebic antibody (indirect haemagglutination test) was markedly elevated (titre, 16 384). Ultrasound of the abdomen did not show any concurrent liver lesion. Other investigations for acquired immunodeficiency status—including antibody for human immunodeficiency virus, fasting glucose, and serum tumour markers—were unremarkable. His condition improved with intravenous metronidazole 500 mg 3 times per day. Follow-up colonoscopy performed 4 weeks later showed healed ulcers with mildly erythematous mucosa. Mucosal biopsies confirmed the eradication of amoebic infection.

Key words

Dysentery; amebic; *Entamoeba histolytica*; Entamoebiasis; Enzyme-linked immunosorbent assay; Polymerase chain reaction

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阿米巴病感染十年後的復發

一名10年前患有阿米巴肝膿腫的52歲精神分裂症患者，因出現嚴重直腸出血須服用複合抗菌劑治療。病人經胃鏡活檢確診阿米巴結腸炎。在治療受阿米巴病感染的病人時，醫生應留意或未能根治阿米巴蟲的風險。患者服用整個抗菌劑療程後須接受如抗原檢測和聚合酶鏈反應的糞便檢查，確保阿米巴蟲已被清除。

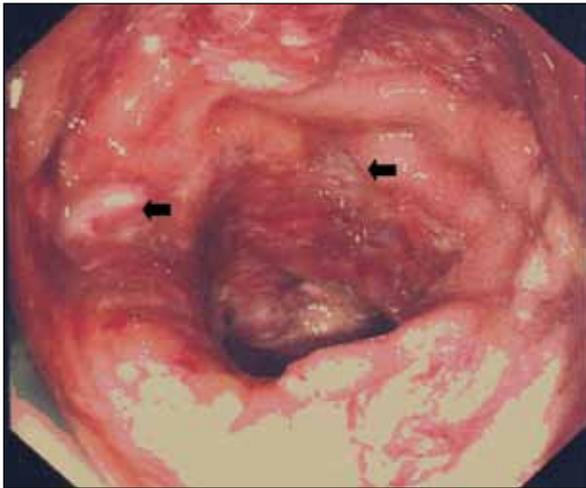


Fig 1. Colonoscopic view demonstrating multiple ulcers (arrows) with surrounding erythematous mucosa

Discussion

In Hong Kong, amoebic dysentery is a rare condition. In the past 5 years, the annual incidence rate has been less than 6.¹ The disease is caused by the intestinal protozoan *Entamoeba histolytica*. The life cycle of *E histolytica* includes an infectious cyst and a motile trophozoite. After ingestion of the cyst, it excysts in the small bowel and trophozoites are released. The trophozoites invade the colonic mucosa, causing colitis. If the organism enters the bloodstream, it can cause abscess formation in the liver, brain, and lungs. However, only a few infected individuals develop symptoms, with most remaining asymptomatic and acting as carriers of the disease,² thus constituting a substantial health hazard to the public.

Diagnosis of amoebic colitis can be confirmed by microscopic examination of the stool samples. This method has several shortcomings, however. First, microscopic examination is not sensitive. In one case series, the sensitivity of stool microscopy for diagnosis of amoebic infection was only 21%.³ In this patient, all four stool samples were negative for cysts or trophozoites, which reflects the low sensitivity of stool microscopy. Second, the results can be confounded by the misidentification of macrophages

as trophozoites, polymorphonuclear leukocytes as cysts, and other non-pathogenic species (eg *Entamoeba dispar*) as the causative organism. Third, the accuracy of stool testing relies heavily on how the stool specimens were sampled and processed.⁴ New approaches to identification of *E histolytica* from stool based on detection of *E histolytica*-specific antigen and DNA by polymerase chain reaction (PCR) are available in some centres. Both methods are more accurate than stool microscopy. Studies comparing stool antigen testing and microscopy examination have demonstrated the superiority of the antigen test for diagnosing *E histolytica* infection.⁵ Besides stool tests, serology tests for *E histolytica* infection may be helpful for making a diagnosis. Although serology cannot differentiate recent infection from past infection, it is particularly useful in Hong Kong where infection is not prevalent, as a raised titre always indicates acute infection. For difficult cases, biopsy of the colonic mucosa may

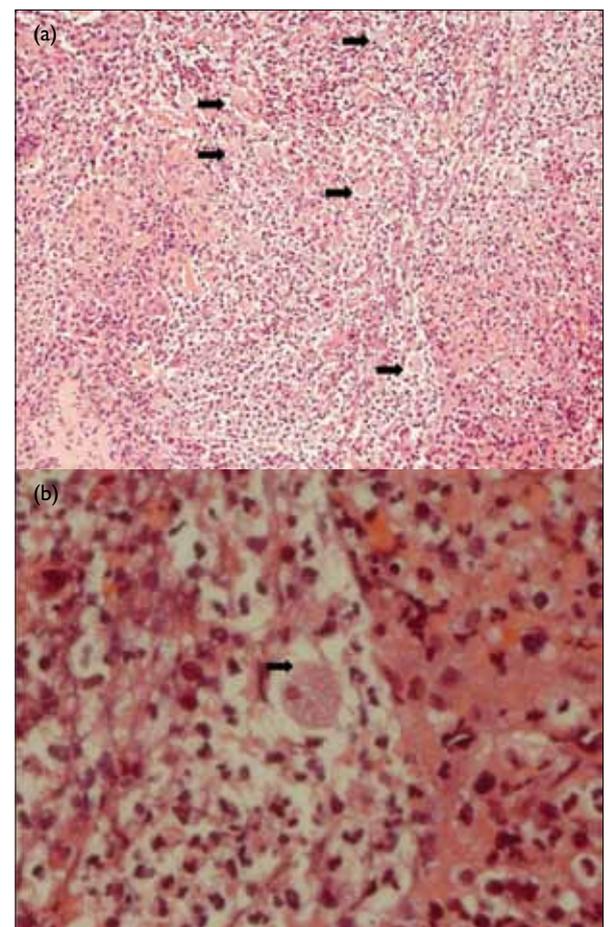


FIG 2. (a) Microscopic examination of colonic ulcer debris showing multiple trophozoites (arrows) [haematoxylin and eosin stain; original magnification, x 100]. (b) High-power microscopic view showing an amoebic trophozoite that appears round in shape and contains voluminous foamy cytoplasm. Phagocytosis of erythrocytes is noted (arrow) [haematoxylin and eosin stain; original magnification, x 400]

be required. Biopsy from the involved mucosa may show replacement of normal mucous membrane by a thick layer of debris composed of necrotic epithelial cells, fibrin, extravasated red blood cells, and mixed inflammatory cells. Occasionally, amoeba organisms can be seen, which appear as round nucleated structures associated with ingested erythrocytes.⁶

Management of amoebic infection involves supportive care and anti-amoebic treatment. Owing to its availability, metronidazole is the commonest anti-amoebic agent used in Hong Kong. Treatment should be followed by administration of a luminal agent, for instance, paromomycin and diloxanide, to eradicate any potential intestinal reservoirs.⁷ Complete eradication of the organism is not guaranteed however, even with combination of anti-amoebic treatment. Treatment failure has been reported in up to 59% of patients treated with metronidazole.⁸ Resolution of symptoms should not be viewed as eradication of the organism as an asymptomatic carrier state is common. Therefore, the success of treatment should be confirmed by repeating stool testing, preferably by more sensitive methods, such as the antigen test or DNA test by PCR. As the serum antibody titre can persist after the acute infection, measuring the serum antibody level is useful for confirming eradication.

This patient had retired from employment

as a seaman several years before the first episode of symptom onset. It is likely that he acquired the organism from an endemic region and carried the disease for a few years before the onset of the disease. He received the appropriate treatment after the first episode but developed symptoms again 10 years later. The likely explanation is failed eradication of the first episode and he became a chronic asymptomatic carrier. This theory was supported by the absence of a history of foreign travel after the first episode and the relatively low risk of acquiring the infection in Hong Kong.

In summary, this report is of a patient with recurrent amoebic infection related to failed eradication. This report highlights the importance of high clinical suspicion for making the diagnosis of amoebic infection in non-endemic areas, including Hong Kong. A detailed history of travel to endemic areas should be sought. Doctors treating patients with symptoms of colitis should be aware of the low sensitivity of stool microscopy. If amoebic infection is suspected, further tests of serology and endoscopic examination of the colon with biopsies for histological examination may be pursued. Eradication of the infection should also be confirmed by repeated stool testing, preferably by a sensitive technique such as stool antigen or PCR. Immunocompetence should also be checked.

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