Amoebiasis Presenting as Acute Appendicitis

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We report a case of amoebic appendicitis without colitis symptoms. Acute appendicitis is commonly encountered by gastroenterologists in their daily practice. The number of cases of amoebiasis increases annually in Japan, and is thought to be associated with an increase in sexually transmitted disease or travel to endemic areas. However, acute amoebic appendicitis is rare and the prognosis is very poor compared to nonamoebic appendicitis. In our case, appendectomy was performed immediately after onset, and the patient was discharged without complications. It is difficult to differentiate between amoebic and nonamoebic appendicitis preoperatively, and the possibility of amoebic appendicitis should be kept in mind.

Key words: *Entamoeba histolytica*, Appendicitis

INTRODUCTION

In Japan, amoebiasis is typically found in men who have sex with men [1] and individuals with recent travel to endemic areas. Common symptoms are diarrhea, bloody mucoid stool, and abdominal pain, and the course may become chronic. Amoebiasis induces inflammation of the colon [2], especially the rectum and cecum, but does not commonly cause acute appendicitis. Here, we present the case of a 47-year-old man with no risk factors as noted above, who developed acute amoebic appendicitis.

CASE REPORT

A 47-year-old man was referred to our hospital with acute right lower abdominal pain. He had no history of recent travel to endemic areas or acquired immunodeficiency syndrome. On admission, his temperature was 36.5°C. Physical examination revealed localized tenderness in the right lower abdomen without muscle guarding or rebound tenderness. Laboratory tests revealed a white blood cell count of 12,800 cells/μL and a C-reactive protein (CRP) level of 1.421 mg/dL. Computed tomography revealed a dilated appendix with a maximum diameter of 15 mm and thickened cecal wall (Fig. 1). He was diagnosed with acute appendicitis and underwent surgery. His appendix showed acute inflammation from the cecum to the root of the appendix, without necrosis, perforation, or formation of localized abscess. There were several ulcers in the inflamed appendix (Fig. 2). Some hematophagous trophozoites of *Entamoeba histolytica* were suspected in the ulcer bed by pathological examination with hematoxylin and eosin stain (Fig. 3) and additional pathological examination with periodic acid-Schiff stain revealed multiple trophozoites of *E. histolytica* (Fig. 4). Histopathological examination revealed amoebiasis presenting as phlegmonous appendicitis. After appendectomy, he recovered uneventfully. As fecal examination was negative, he received no additional treatment with metronidazole. He was discharged on postoperative day 5.

DISCUSSION

Cases of amoebiasis are divided into intestinal amoebiasis and extraintestinal amoebiasis. Intestinal amoebiasis cases are further classified as asymptomatic cyst, acute colitis, and chronic colitis. The proportion of patients with symptoms is less than 10% after infection with *E. histolytica* [3]. Most patients with symptoms have a clinical course similar to chronic colitis, but some present symptoms of acute colitis. Approximately 3% of acute colitis cases progress to fulminant colitis with a high mortality rate [4].

Acute appendicitis, which occurs when the appendix lumen is obstructed, is the most common cause of acute abdomen. Appendix obstruction can be caused by a coprolith, lymphoid hyperplasia, tumor, or parasitic infection. Akbulut *et al.* reviewed studies on the etiology of acute appendicitis published between January 2000 and November 2010 and reported that amoebiasis was detected in 118 (0.15%) of 80,698 cases [5].

Amoebic appendicitis is considered to be a rare disease, with a reported incidence of 0.5–2.3%, even in endemic regions [6, 7]. We searched for cases of amoebic appendicitis reported from 1996 to 2016 using Igakuchuo-Zasshi and reviewed the clinical features, treatment of choice, and outcomes of 15 patients [3, 8–20] including the present case. Twelve patients were

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Fig. 1 An axial contrast-enhanced computed tomography image of the abdomen showing marked thickening of the appendix (arrows).

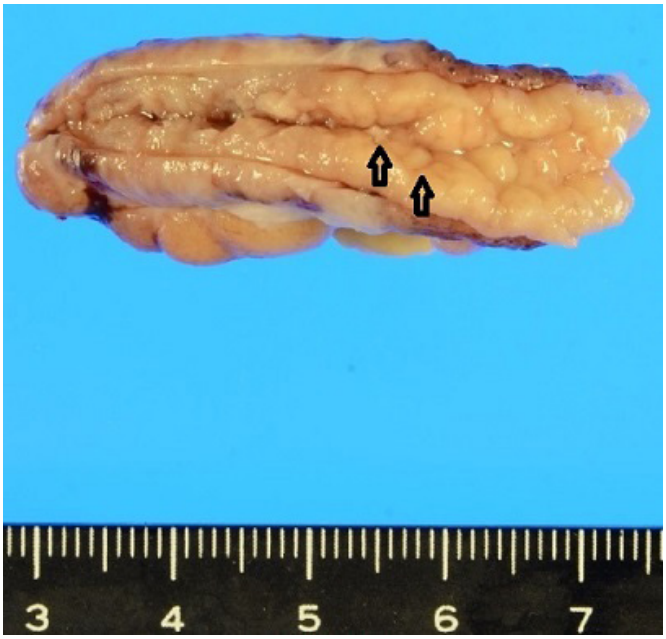

Fig. 2 Resected appendectomy specimen findings were compatible with phlegmonous appendicitis. There were several ulcers (arrows) in the appendix.

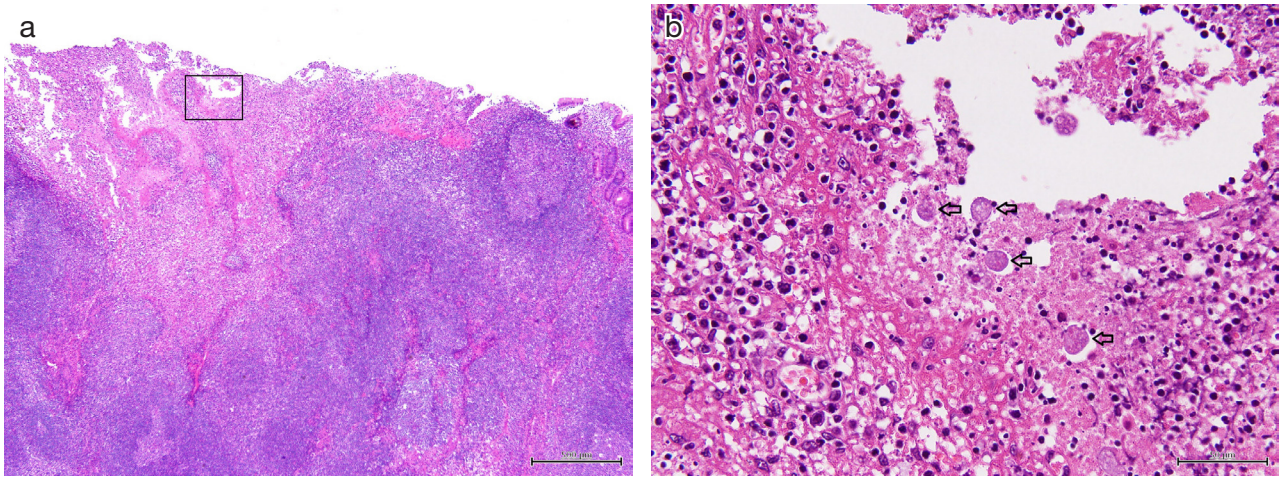

Fig. 3 Histopathological photomicrograph of the hematoxylin and eosin stain suspecting some hematophagous trophozoites of *E. histolytica* (arrows) seen in the ulcer bed. Fig. 3b is a high power view of the ulcer bed shown as the square on Fig. 3a; (a) × 40 and (b) × 400.

male (80%) and 3 were female (20%), with an average age of 44 years (range, 25–60). All the patients had abdominal pain, but only 2 (13%) had bloody diarrhea. Three-fourth of the patients had no history of travel to endemic regions or HIV infection. Fourteen patients (93%) underwent surgery and 10 (67%) survived. Only one patient (7%) had a preoperative diagnosis of amoebic appendicitis and was treated with metronidazole.

Mortality in amoebic appendicitis in the world is much higher (7–40%) [21] than in nonamoebic appendicitis. There are several reasons. First, a preoperative diagnosis of amoebic appendicitis is almost impossible, because no specific symptoms or examinations distinguish amoebic from nonamoebic appendicitis; a fecal examination has a low detection rate of approximately 50% [22]. Otan *et al.* reported that only 5 (3%) of 174 cases were diagnosed preoperatively [23]. Second, it is difficult to detect the trophozoites of *E. histolytica* in resected specimens with hematoxylin and eosin staining. When the histopathological findings indicate amoebic appendicitis, such as flask-shaped ulcers and hematophagous changes, it is useful to also conduct PAS

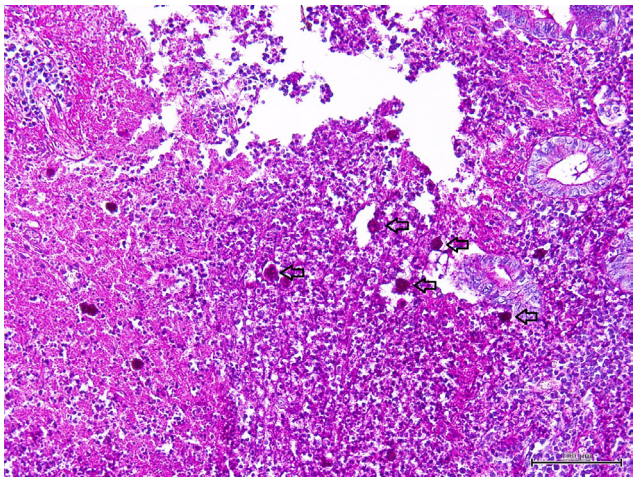

Fig. 4 Histopathological photomicrograph of the periodic acid-Schiff (PAS) stain showing multiple trophozoites (arrows) of *E. histolytica* (magnification: × 200).

staining. In the present case, hematophagous changes were noted in the resected specimen. In addition to risk factors such as men having sex with men or individuals with recent travel to endemic areas, postoperative complications such as intestinal perforation or intraperitoneal abscess could be clues to the diagnosis of amoebic appendicitis.

Lastly, treatment only by appendectomy is inadequate to cure amoebic appendicitis because cases of amoebiasis restricted to the appendix are rare. Therefore, additional treatment with metronidazole is usually necessary. In the present case, postoperative clinical course was satisfactory, but we thought that metronidazole should be given to the patient who was diagnosed as amoebic appendicitis, as the former reports recommend [7, 24].

The possibility of amoebic appendicitis should be kept in mind, because the incidence of amoebiasis has been increasing in Japan, and a delay in diagnosis correlates with a poor outcome.

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