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## Case Report

### Acute Fulminant Necrotizing Amebic Colitis and Enterocolitis Associated with Perforation in a Male Breast Cancer Patient

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**Abstract** : In Japan, amebiasis is typically found in men who have sex with men and in individuals with recent travel to endemic areas. We experienced a patient with fulminant necrotizing amebic colitis and enterocolitis who presented with a severe disorder of the liver and renal function. The patient was a 71-year-old man who had lived in Yokohama City, Japan for 30 years. His stool sample showed no amebic dysentery protozoa and cultured negatively for human immunodeficiency virus. Despite being treated with meropenem, pyrexia of 39–40°C continued for 4 days. On hospital day 8, a colonic abscess and perforation of the transverse colon were detected by computed tomography (CT). His fever did not improve, suggesting progression of infectious disease. Subsequent emergency laparotomy revealed a perforation in the middle of the transverse colon. Peritoneal lavage and right hemicolectomy were performed; however, a CT scan on hospital day 16 (postoperative day 8) showed re-perforation of the colon and an abscess around the site of anastomosis, prompting emergency intestinal and left hemicolectomy resection. Amebae observed pathologically during the second emergency operation led to a diagnosis of amebic colitis. Endotoxin adsorption therapy was performed, and metronidazole was administered. Despite prompt diagnosis and treatments, the patient's general conditions became fulminant, and multiple organ failure developed. On hospital day 18 (postoperative day 10), his C-reactive protein level was 20 mg/dl. He was clinically diagnosed as having sepsis and multiple organ failure. The patient died on hospital day 23. Acute colitis is commonly encountered in daily practice, but it is difficult to differentiate between amebic and non-amebic colitis preoperatively and thus, the possibility of amebic colitis should be considered in such clinical presentations.

**Key words** : fulminant amebic colitis, operation, intestinal and colon perforation

## Introduction

Intestinal infestation with *Entamoeba histolytica* (*E. histolytica*) is endemic throughout the tropics and subtropics<sup>1)</sup>, and is the second leading cause of death from parasitic disease

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worldwide. In Japan, amebiasis has been increasing recently, especially in men who have sex with men and in individuals with recent travel to endemic areas<sup>2)</sup>. The mortality rate of fulminant amebic colitis is very high<sup>3)</sup>.

### Case report

A 71-year-old man was admitted to the Department of Gastroenterological Medicine at our hospital because of epigastric pain. He had an approximate 1-week history of progressive distension and diarrhea and a medical history of right breast cancer. We could not obtain a detailed history of his treatment for breast cancer, but there were no recurrent findings detected by computed tomography (CT). He had no history of recent travel to areas endemic for *E. histolytica* or of acquired immunodeficiency syndrome. His body mass index was 22.2 kg/m<sup>2</sup>, and an abdominal examination revealed distension, decreased bowel sounds, and rebound tenderness. His vital signs were as follows: temperature 38.8°C; pulse rate 86 beats/min; and blood pressure 110/72 mmHg. Laboratory tests revealed a hemoglobin level of 12.3 g/dl, white blood cell count of 28,400 cells/cm<sup>3</sup>, and C-reactive protein level of 25.1 mg/dl. A stool sample showed no amebic dysentery protozoa, negative culture results for human immunodeficiency virus (HIV), and a negative antigen test result for *E. histolytica*. An abdominal X-ray showed a small intestinal niveau in the left upper abdomen (Fig. 1), and the abdominal CT scan showed diffuse wall thickening of the right colon with abscess formation. He was treated with meropenem (3.0 g/day) for infectious disease. High-grade pyrexia (39–40°C) continued for 4 days, indicating an increased inflammatory reaction, but the patient showed no mucosanguineous stools. On hospital day 8, he developed a marked worsening of abdominal pain, and was diagnosed as having an intraabdominal abscess without liver abscess due to perforation of the transverse colon detected by CT (Fig. 2). His fever did not improve, suggesting the progression of infectious disease.

Emergency laparotomy visualized a gangrenous region and perforation of both the transverse

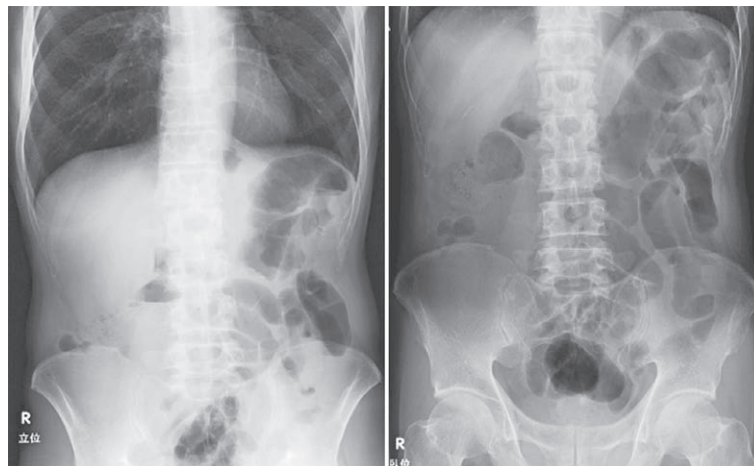


Fig. 1. Abdominal X-ray  
Abdominal X-ray showing the small intestinal niveau in the left upper abdomen.

and ascending colon, with foul-smelling contents (Fig. 3A, B). An abdominal cavity drainage and right hemicolectomy were performed, and the cut surface showed multiple ulcers in the cecum and ascending colon (Fig. 4A), and necrosis of the colonic mucosa macroscopically. Yet, the cause of the perforation could not be determined. We reassessed the *E. histolytica* stool antigen test, and the result was negative. Following the administration of antibiotics, his clinical course did not improve, remission was not achieved, and his systolic blood pressure continued to decrease. Because his postoperative hemodynamic condition was unstable, he was treated with rapid fluid resuscitation and intensive care, including polymyxin B-immobilized fiber column hemoperfusion.

An abdominal CT scan on hospital day 16 (postoperative day 8) showed free air and a colonic abscess around the site of anastomosis (Fig. 5), prompting total colectomy, partial

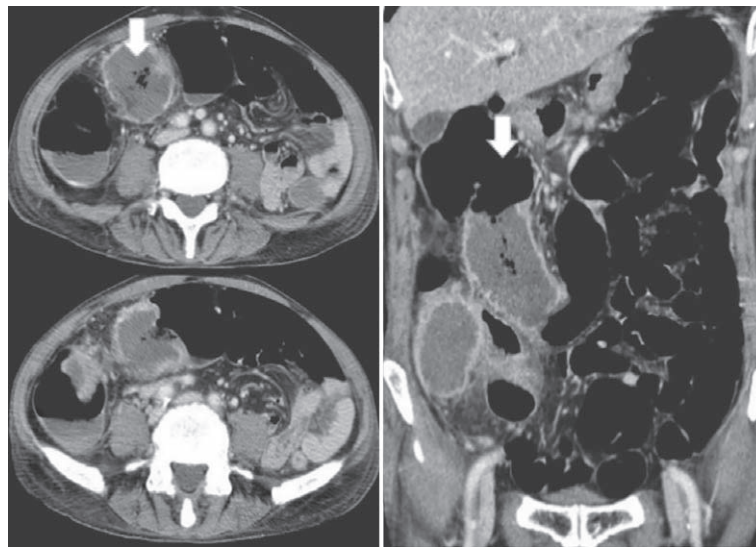


Fig. 2. Computed tomography (CT) on hospital day 8  
Contrast-enhanced abdominal CT scan showing an intraabdominal abscess (arrows) without liver abscess due to perforation of the transverse colon.

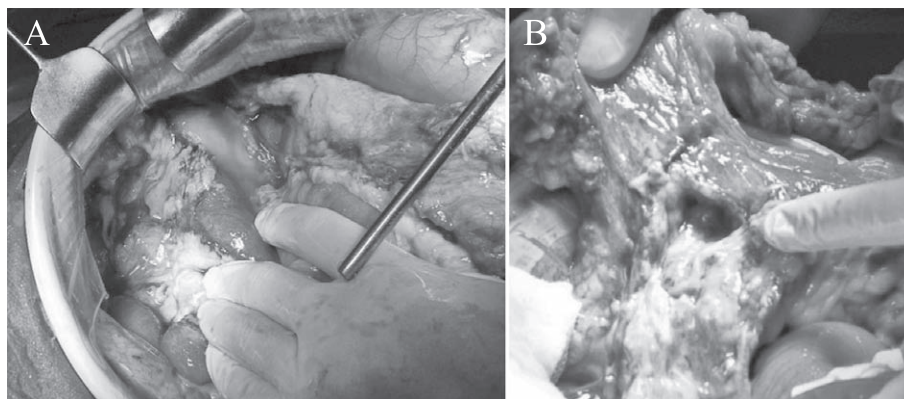


Fig. 3. Intraoperative findings during the primary operation  
Emergency laparotomy shows a gangrenous region (A) and perforation (B) of the transverse colon and ascending colon, with foul-smelling contents.

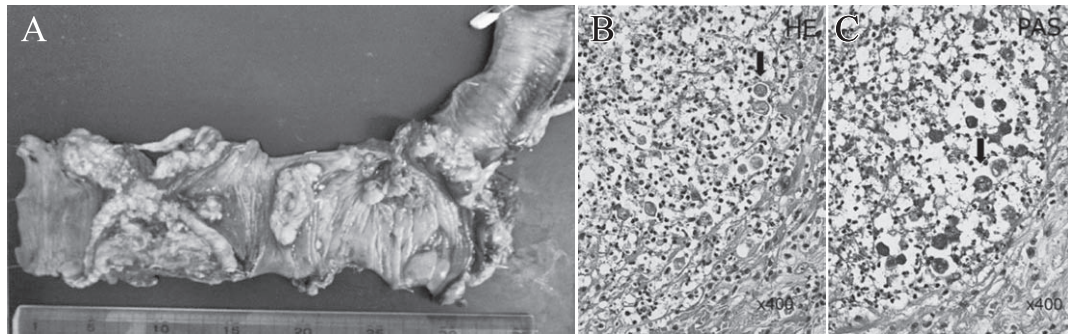


Fig. 4. Resected specimen (A) and histological findings (B, C)  
Cut surface showing multiple ulcers in the cecum and ascending colon. Micrograph (hematoxylin and eosin [HE] staining,  $\times 400$ ) (periodic acid-Schiff [PAS] staining,  $\times 400$ ) showing *E. histolytica* trophozoites (arrows).

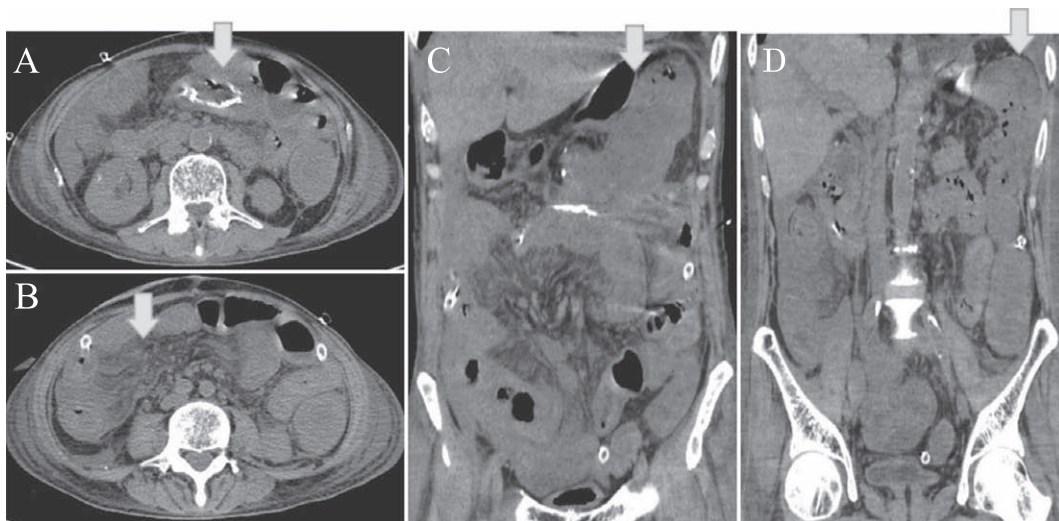


Fig. 5. Computed tomography (CT) on postoperative day 8  
Abdominal CT scan showing a mesenteric edema (B), free air (C), and a colonic abscess (D) around the site of anastomosis (A).

removal of the ileum, and ileostomy. Intraoperatively, a pericolic abscess and perforation were found in the descending colon and site of anastomosis (Fig. 6A). He had peritonitis with marked pus and full-thickness necrotic tissue in the ileum (Fig. 6B). Amebae were identified pathologically during the second operation, and amebic colitis was definitively diagnosed, with micrographs showing *E. histolytica* trophozoites in the mucosa and muscularis of the resected colon and small intestine (Fig. 4B, C). Metronidazole was administered immediately.

Despite prompt diagnosis and treatment, the patient's general condition became fulminant and multiple organ failure developed. He died on hospital day 23 (postoperative day 15).

## Discussion

The spectrum of clinical infective colitis ranges from an asymptomatic state, a mild form with symptoms such as abdominal pain, fever, or diarrhea, to a severe state that may result

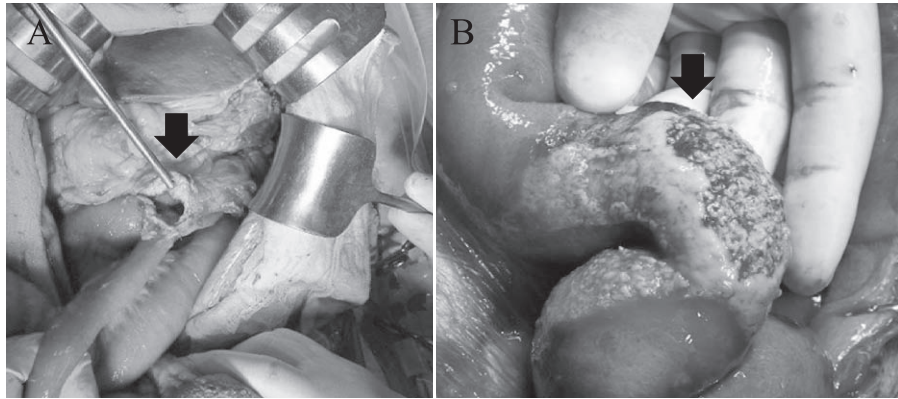


Fig. 6. Intraoperative findings during the second surgery  
 Intraoperative photographs showing a pericolic abscess and perforation of the descending colon and site of anastomosis (A), as well as marked pus in the ileum and full-thickness necrotic tissues of the ileum (B).

in gastrointestinal bleeding or colonic perforation<sup>4,5</sup>). In the present case, only the cytological examination by periodic acid-Schiff staining was useful for making a prompt diagnosis of amebic colitis. This case report emphasizes the importance of early, prompt diagnosis and appropriate treatment to improve the outcome of fulminant amebic colitis. From 1970 to 2003, only 58 cases of fulminant amebic colitis with colon perforation have been reported in Japan, with a mortality rate of 72.4%<sup>6</sup>), but a preoperative diagnosis rate of 12.1%<sup>6</sup>), highlighting the difficulty in diagnosis. To ensure a prompt and accurate diagnosis of intestinal amebiasis, the following information must first be obtained: (i) if the onset of the disease is subacute, (ii) whether the stools contain blood and mucus, and (iii) whether the patient travelled to endemic areas. Then, the patient's clinical signs and symptoms should be evaluated, such as diarrhea or dysentery, abdominal pain, weight loss, and fever over 38°C. Finally, a combination of *E. histolytica* stool antigen tests or serological testing by stool polymerase chain reaction is recommended<sup>7</sup>).

About 90% of amebic infections are asymptomatic, and the remaining 10% of those produce a spectrum of clinical syndromes<sup>8</sup>). Bowel perforation is reported in nearly 1% of patients hospitalized for amebiasis<sup>9</sup>), thus a delayed diagnosis could lead to higher mortality even after surgical therapy. In our case, we visualized the progressive gangrenous region and perforation at the site of anastomosis during the second surgery on postoperative day 8. With two sets of surgical findings, we were able to observe sudden amebic progression over only 1 week. Emergency intestinal resection and total colectomy failed to recover the patient from shock status, and the patient died on day 15 after the first surgery.

Amebiasis is caused by the protozoan *E. histolytica*, which dominantly affects the colon and liver. The main route of transmission depends on the ingestion of amebae from polluted food or water contaminated with feces<sup>8,10</sup>), although person-to-person contact remains the cause in the majority of cases, and amebic enteritis is a sexually transmitted disease<sup>10</sup>). In this case, the patient was HIV-negative, and we could not determine if he had travelled to an affected area, the length of his chemotherapy therapy for breast cancer before the hospitalization, nor whether

he was homosexual. Breast cancer is a risk factor for the fulminant form of amebiasis due to the associated immune-compromise, because latent infections may become invasive in a setting of impaired host immunity.

In summary, we observed amebic colitis with full thickness necrosis and perforation as well as amebic infection in the colon and ileum. Early recognition and initiation of medical therapy in similar cases are vital to preventing catastrophic outcomes.

#### **Acknowledgment**

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#### **Conflict of interest disclosure**

The authors declare that they have no conflict of interest regarding the publication of this paper.

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