

Original Article

Amebic Colitis: A Case Series and Review in Taipei Veterans General Hospital

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Key Words

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Purpose. Amebic colitis caused by *Entamoeba histolytica* can range in severity from asymptomatic to life-threatening colitis. However, accurate diagnosis is difficult because of nonspecific symptoms. We aimed to evaluate diagnostic modalities and possible risk factors for amebic colitis in a case series.

Methods. We reviewed patients with amebic colitis, with diagnosis proven by pathologic or serum testing, in Taipei Veterans General Hospital from January 2000 to December 2015. The symptoms, examinations, and treatment were reviewed and analyzed.

Results. Eleven patients were included in this case analysis. The mean age was 51 years. The main symptoms were bloody stools, diarrhea, and abdominal pain. Nine patients underwent indirect hemagglutination assay (IHA), and all tested positive. Colonoscopy showed ulcers of variable sizes, predominantly in the rectum. Most pathology showed trophozoites with inflammation.

Conclusions. Amebic colitis may present with variable nonspecific symptoms. Colonoscopy is a good diagnostic method when accompanied by biopsy for suspected amebiasis.

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Entamoeba histolytica (EH) is an enteric protozoan that infects 10% of the world's population, resulting in 100,000 deaths per year.¹ In Taiwan, amebiasis is a low-endemicity disease.² The number of cases reported to the Centers for Disease Control in Taiwan since 2000 ranges from 125 to 349 annually.³ Infection severity can range from asymptomatic to the presence of fever, abdominal pain, and bloody diarrhea.⁴⁻⁶ Complications of amebic infection include stricture, obstruction, fulminant colitis, colonic perforation,

peritonitis, and even amebic liver abscess.⁷ These complications can be life threatening. However, diagnosis of amebic colitis is difficult because the gastrointestinal symptoms are nonspecific and can mimic other colonic diseases. Methods for diagnosing amebic infection include positive identification of *E. histolytica* in stool or colonic mucosal samples, polymerase chain reaction (PCR), enzyme-linked immunosorbent assay (ELISA), serum amebic hemagglutination test, colonoscopic biopsy, and intraluminal

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fluid examination. Certain colonoscopic findings, however, are shown to be predictive of amebic colitis, while other endoscopic abnormalities are difficult to interpret because they may mimic findings of other colonic diseases.⁸

Recently, a case series and review revealed that colonic evaluation including biopsy and microscopic identification is feasible for diagnosing amebic colitis.² Here we aimed to evaluate the diagnostic options and possible risk factors in a case series of patients with amebic colitis.

Methods

This retrospective review extracted data for all cases with amebic colitis proven by pathologic and serum diagnosis in Taipei Veterans General Hospital, Taiwan, from January 2000 to December 2015. The demographics, clinical manifestations, physical examination and laboratory findings, endoscopic and pathology reports, and management were reviewed in medical records and analyzed.

Results

Eleven patients were included this case study. Of these, 2 were female, and 9 were male. The mean age was 51 (ranging from 23 to 78). The main symptoms

were bloody stool (8/11), diarrhea (4/11) and abdominal pain (3/11). Other symptoms include weight loss, and fever. One patient was incidentally diagnosed with amebic infection. Four patients had symptoms for more than 1 month, and 6 patients had symptoms for up to 1 week. Three patients had conditions associated with immunosuppression: two had HIV, and the other was receiving chemotherapy for lung cancer (Table 1).

Investigations and diagnosis

Among the 11 cases, one had neutropenia due to immunosuppression, and the others had normal leukocyte counts. Current serologic tests for detecting amebiasis, such as the indirect hemagglutination assay (IHA), are highly sensitive for amebic infection.⁹ Nine patients underwent IHA, and all tested positive (titer > 1:128). All patients underwent colonoscopic examinations, and all images showed ulcers of varying sizes (Fig. 1). The infectious lesions were predominantly in the rectum, and 7 patients had right colon involvement. All patients had colonoscopic biopsies. Most pathologic results showed trophozoites of *E. histolytica* (Fig. 2), and 2 showed only acute and chronic inflammation with necrotic tissue (Table 2).

Treatment

Ten patients received oral metronidazole, and 1

Table 1. Overall characteristics and main manifestations of patients with amebic colitis

No	Sex	Age	Main symptom	Other symptoms	Duration	Diagnosis	Immune condition
1	M	48	Bloody stool		2 months	Colonoscopic biopsy; IHA	Normal
2	M	45	Bloody stool	Diarrhea	2 months	Colonoscopic biopsy; IHA	Normal
3	M	23	Bloody stool	Diarrhea/abdominal pain	1 week	Colonoscopic biopsy; IHA	Normal
4	M	76	Abdominal pain		1 week	Colonoscopic biopsy; IHA	Normal
5	M	31	Bloody stool		1 week	Colonoscopic biopsy	Immunosuppression due to HIV
6	M	46	Diarrhea	Body weight loss	3 months	Colonoscopic biopsy; IHA	Normal
7	F	63	Abdominal pain	Bloody stool	3 days	Colonoscopic biopsy	Immunosuppression due to chemotherapy
8	M	50	Asymptom		Nil	Colonoscopic biopsy; IHA	Normal
9	F	47	Bloody stool		2 months	IHA	Normal
10	M	58	Bloody stool	Diarrhea	1 week	IHA	Normal
11	M	78	Bloody stool		1 day	Colonoscopic biopsy; IHA	Normal

F: female; M: male; IHA: indirect hemagglutination test.

patient was lost to follow-up after diagnosis. Most treatment was for 2 weeks. One patient took antibiotics for 4 weeks because of fulminant amebic colitis. This patient also underwent transverse loop colectomy due to colon perforation with localized abscess formation. Ten patients improved after treatment. One patient died of multiple infections because of compromised immune status, and 1 patient died from terminal lung cancer during follow-up (Table 3).

Discussion

Amebic colitis is rare and associated with various symptoms.^{4,6} It is also difficult to diagnose amebic co-

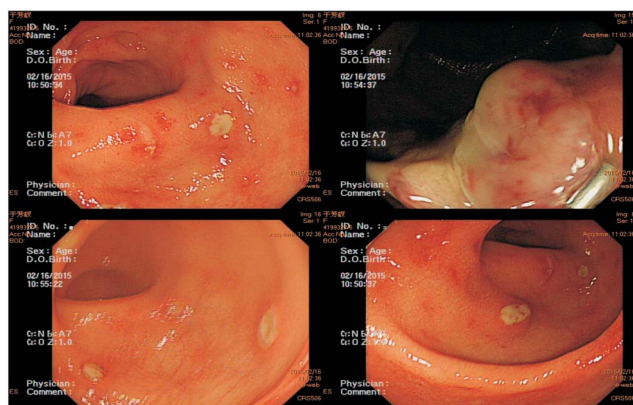


Fig. 1. Endoscopic findings show exudate with multiple ulcers of variable sizes, which are difficult to distinguish from inflammatory bowel disease, cytomegalovirus colitis, intestinal tuberculosis, and pseudomembranous colitis.

litis due to various symptoms. The purpose of this case series was to identify possible methods for diagnosis of amebic colitis. In the case study, most patients

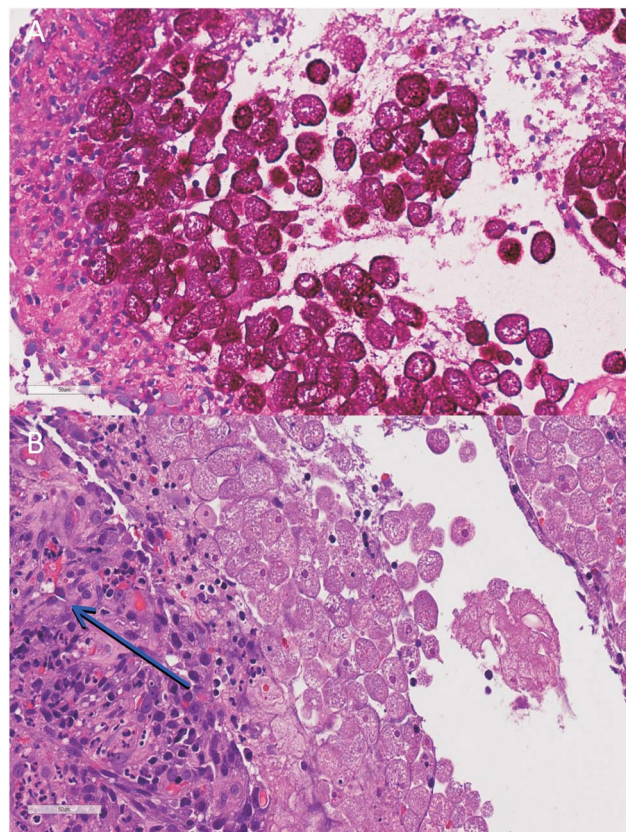


Fig. 2. High power microscopic view (H&E and PAS stain, $\times 100$) of biopsy reveals A. Colonic mucosal tissue with acute and chronic inflammation, and B. Trophozoites of *Entamoeba histolytica* with inflammatory exudate (arrow).

Table 2. Endoscopic findings and pathology of biopsy

	Locations	Findings	Pathology of biopsy
1	Rectum	Multiple variable ulcers	Trophozoites of <i>Entamoeba histolytica</i>
2	Rectum and sigmoid colon	Multiple variable ulcers	Trophozoites of <i>Entamoeba histolytica</i>
3	Whole colon, rectum	Multiple small ulcers	Trophozoites of <i>Entamoeba histolytica</i>
4	Whole colon, rectum	Multiple small ulcers	Inflammatory exudate containing trophozoites
5	Whole colon, rectum	Multiple erythematous plaque with inflammation change	Inflammatory exudate containing trophozoites
6	Rectum	Small ulcers	Trophozoites of <i>Entamoeba histolytica</i>
7	Rectum, T-colon	Multiple variable ulcers	Trophozoites of <i>Entamoeba histolytica</i>
8	Whole colon, rectum	Multiple variable ulcers	Trophozoites of <i>Entamoeba histolytica</i>
9	Rectum and cecum	Multiple variable ulcers	Acute and chronic inflammation
10	Rectum and sigmoid colon	Multiple variable ulcers	Acute and chronic inflammation with necrotic tissues
11	Ascending colon	Seven ulcers with bleeding	Trophozoites of <i>Entamoeba histolytica</i> inflammation

Table 3. Treatment methods and outcomes after treatment

No.	Treatment	Outcome
1	Metronidazole for two weeks	Improved
2	Metronidazole for three weeks	Expired after three-week treatment because multiple infection
3	Metronidazole for two weeks	Improved
4	Metronidazole for two weeks	Improved
5	Loss follow up	Loss follow up
6	Metronidazole for two weeks	Improved
7	Metronidazole for four weeks T-loop colostomy for diversion	Improved amebic colitis. Expired due to lung cancer.
8	Metronidazole for two weeks	Improved
9	Metronidazole for two weeks	Improved
10	Metronidazole for two weeks	Improved
11	Metronidazole for one weeks	Improved

presented with bloody stool, diarrhea, and abdominal pain. Takahashi et al.¹⁰ studied 55 patients with amebic colitis (34 men; median age 52 years, range 18-79). The most frequent clinical manifestations were abdominal pain, diarrhea, bloody stool, and fever. Fleming et al.¹¹ reported 9 patients, who were diagnosed with amebic colitis in a United States-Mexico border city, and the main manifestations were also diarrhea and bloody stool. These symptoms or signs were similar to those of other acute abdominal diseases, such as appendicitis, ischemic colitis, inflammatory bowel disease, or malignancy.

In a review of other studies and case series, anemia and leukocytosis were common laboratory findings.^{1,11,12} In our case study, most patients did not have anemia or leukocytosis. One patient was neutropenic because of an immunocompromised status. The patient who was diagnosed with fulminant amebic colitis with localized perforation did not have leukocytosis but had just received chemotherapy with cisplatin and Gemzar, which can cause bone marrow suppression. The reason for the different findings was that most of our cases did not have fulminant colitis or systemic infection. IHA is highly-sensitive for diagnosis of amebic infection. Nine patients underwent IHA, and all of them tested positive. Serum IHA could be a useful method to detect amebic colitis, especially in non-endemic areas, where physicians might misdiagnose amebic colitis as ulcerative colitis or other

inflammatory bowel disease due to lack of experience. Although serology is sensitive and specific, relying on serology may delay the diagnosis as seroconversion takes 2-4 weeks.¹³ It is therefore advisable to perform other investigations for accurate diagnosis.

In our case study, all patients underwent colonoscopic examination and biopsy. Previous studies suggested that colonoscopy combined with biopsy and/or culture of intestinal fluid samples is useful for confirming a diagnosis of suspected amebic colitis.¹⁴ Lee et al.² reviewed 20 cases with amebic colitis in Taiwan, and the majority of those cases exhibited endoscopic findings such as ulcers of different sizes, with and without exudate and aphthae or erosions, multiple lesions, and the presence of edematous swollen mucosa. Moreover, colonoscopic manifestations varied between right-sided colitis and proctosigmoiditis. Nagata et al.⁸ investigated the predictive value of endoscopic findings in diagnosing intestinal amebiasis, and cecal lesions, multiple lesions, and exudate were the best predictors. The colonoscopic results in our review showed multiple ulcers of various sizes. In addition, about half of the patients had involvement of the right colon, and most had involvement of the rectum. These colonoscopic findings are compatible with other studies, and the results could be clues to amebic colitis.

Histological examination will usually demonstrate acute and/or chronic inflammation with amebic trophozoites invading through the bowel wall.¹⁰ In our study, all patients underwent colonic biopsy. Nine cases were found to have trophozoites of *E. histolytica* with inflammatory exudate. Trophozoites were not identified in two cases, but they showed acute and chronic inflammation with necrotic tissue, and amebic infection was detected using IHA. Although microscopic examination was applied to detect trophozoites of *Entamoeba* species in our case series and most studies, more specific identification, such as IHA, supports a definitive diagnosis.^{8,15}

Limitations

This case series study had some limitations. Because of insufficient case numbers in our hospital, we

could not perform adequate statistical analysis for definite conclusions, but only a trend for prediction and recommendations.

This was a retrospective study. Every patient had a colonoscopy but the extent of colonoscopy was based on clinical judgment. Thus, not every patient had a complete colonoscopy to the cecum; therefore, we cannot comment on the right colon in some patients. Further prospective studies should include more cases suspected of amebic colitis. A systematic design, including a detailed history, serum testing, complete colonoscopic examination, and biopsy, should be performed for all included patients.

Conclusions

Amebic colitis cases, have a range of different clinical presentations. Most patients have bloody stool, diarrhea, and abdominal pain. If patients present with the above symptoms and are highly suspect for amebic infection, serum IHA and colonoscopic examinations are needed for further evaluation. Biopsy with pathological examination is also necessary if colonoscopy shows variable ulcerations, which may be misdiagnosed as ulcerative colitis or another inflammatory disease.

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原 著

阿米巴性結腸炎：臺北榮民總醫院病例回顧分析

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目的 阿米巴性結腸炎的表現可從無症狀，到致命的結腸炎。然而，因為非特異性症狀，精準診斷阿米巴性結腸炎是很困難的。本篇文章目的是期待藉由臺北榮民總醫院的病例回顧分析，找出阿米巴性結腸炎可能的診斷工具以及危險因子。

方法 本篇文章收集台北榮民總醫院從 2000 年 1 月到 2015 年 12 月診斷出阿米巴性結腸炎的病人，並且針對症狀、檢查、以及治療進行回顧和分析。

結果 共有 11 例病人納入本案例研究。平均年齡為 51 歲。主要症狀為便血，腹瀉，腹痛。九名患者接受了間接血凝試驗 (IHA) 的測並皆呈現陽性反應。結腸鏡檢查多以大小不一的潰瘍作呈現，且主要的部位位於直腸。大多數切片病理都有發炎反應以及阿米巴滋養體。

結論 阿米巴性結腸炎可能以不同非特異性症狀呈現。如果病人症狀懷疑是阿米巴疾病，結腸鏡加上切片檢查以及間接血凝試驗將是很好的診斷方法。

關鍵詞 阿米巴性結腸炎、結腸鏡、診斷、痢疾阿米巴。