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Case report

Cytomegalovirus colitis with a new diagnosis of ulcerative colitis in an elderly woman

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Abstract

Objectives: Cytomegalovirus (CMV) colitis is generally diagnosed in immunocompromised patients. It is rare for patients who are not immunocompromised to develop CMV colitis. Cases of CMV colitis in patients with inflammatory bowel disease have also been reported. We encountered a case of CMV colitis with a new diagnosis of severe ulcerative colitis and demonstrated the importance of suspecting ulcerative colitis in immunocompetent patients with CMV colitis.

Patient: A 78-year-old woman was hospitalized with fever and diarrhea that had lasted for a month. Colonoscopy revealed continuous diffuse edema, mucosal redness, and multiple punched-out ulcers with bleeding, suggesting cytomegalovirus (CMV) colitis, although she was not immunocompromised. Immunohistochemical staining revealed CMV-positive cells, and CMV colitis was diagnosed. One month later, a colonoscopy was conducted owing to persistent symptoms despite initiating the prescribed antiviral drug. A complete loss of vascular pattern, easy bleeding of the crude mucosa, and exacerbation of multiple punched-out ulcers were observed. She was diagnosed with severe ulcerative colitis. The symptoms of ulcerative colitis disappeared with prednisolone and 5-amino salicylic acid treatment.

Conclusion: Ulcerative colitis should be suspected in immunocompetent patients with CMV colitis.

Key words: cytomegalovirus colitis, ulcerative colitis, immunocompetent patients

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Introduction

Cytomegalovirus (CMV) colitis is diagnosed in immunocompromised patients, associated with human immunodeficiency virus infection, or in recipients of solid organ or hematopoietic stem cell transplant. Cases of CMV colitis in patients with inflammatory bowel disease have also been reported. We encountered a case of CMV colitis with a newly diagnosed severe ulcerative colitis and demonstrated the importance of suspecting ulcerative colitis in immunocompetent patients with CMV colitis.

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Patient and Methods

The patient was a 78-year-old woman (height: 158.5 cm; weight: 42.7 kg) with chronic diarrhea. She had mild abdominal pain 2 months before admission and fever and frequent diarrhea 1 month before admission. Her first colonoscopy, which was observed from the rectum to the terminal ileum, was performed in an outpatient setting and showed ulcers with regenerative changes and small erosions in some areas. She was diagnosed with a convalescent stage of infectious enteritis (Figure 1); however, her symptoms did not improve, and she was admitted to our hospital. She had intermittent abdominal pain, with a stool frequency of 6–8 times a day and a Bristol stool scale rating of 6–7. She had no past medical history, prior medications, or allergies and had never smoked nor consumed alcohol.

The patient's vital signs upon assessment were as follows: body temperature: 36.5°C, pulse: 90 bpm, blood pressure: 102/52 mmHg, and respiratory rate: 15/min, with palpebral conjunctival anemia, no ocular conjunctival yellow stain, no superficial lymph nodes upon palpation, no chest abnormalities, flat and soft abdomen, no palpable liver or

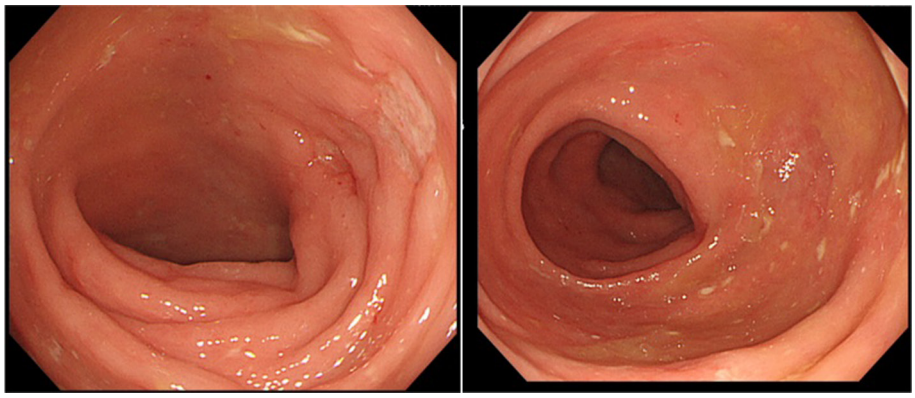

Figure 1 First colonoscopy findings.
Ulcers with regenerative changes and small erosions in some areas were observed.

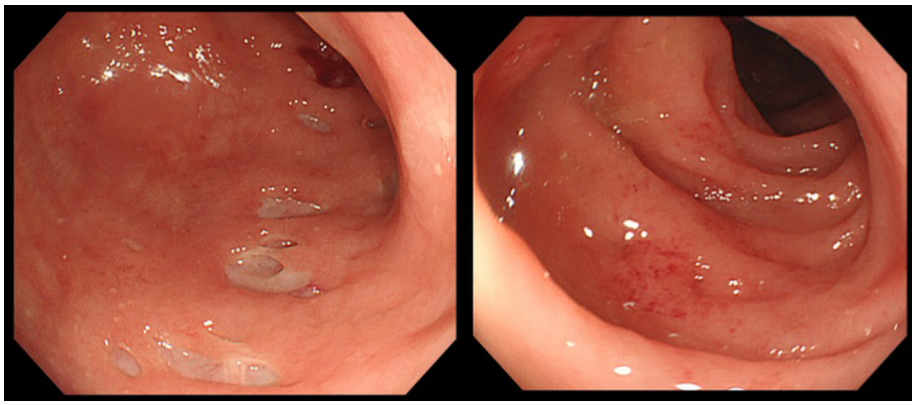

Figure 2 Second colonoscopy findings.
Continuous diffuse edema, redness of the mucous membrane, and multiple punched-out ulcers with bleeding were observed.

spleen, no tenderness, no lower leg edema, and no rash on the limbs or trunk.

Laboratory findings included the following: White Blood Cell: 10,100/μL, Red Blood Cell: 317 million/μL, Hemoglobin: 8.9 g/dL, Hematocrit 27.4%, Platelet 42.0 million/μL, Albumin 2.2 g/dL, C-reactive protein 13.9 mg/dL, normal thyroid function, negative HIV1.2 antibody, negative cytomegalovirus IgM, positive IgG, and negative C. difficile toxin and antigen. Two sets of blood cultures were negative, and a stool culture was negative.

A second colonoscopy was performed on day 3 of hospitalization, but was terminated with an observation from the rectum to the transverse colon due to the patient experiencing severe pain. Continuous diffuse edema, redness of the mucous membrane, and multiple punched-out ulcers with bleeding were observed from the transverse colon to the sigmoid colon (Figure 2). Immunohistochemical staining of the colonic mucosa upon biopsy revealed CMV-positive cells, and a diagnosis of CMV colitis was made. CMV IgG was positive, suggesting that CMV was reactivated. Ulcerative colitis was also suspected based on endoscopic findings. Histopathological examination did not confirm the diagnosis; therefore, ganciclovir was administered as a treatment for CMV colitis for 2 weeks. Despite treatment, fever and diarrhea persisted, and bloody stools were observed; therefore, a third colonoscopy was performed on day 23 of hospitalization. It was terminated with an observation from the rectum to the descending colon due to the patient experiencing severe pain. A complete loss of vascular pattern, easy bleeding of the crude mucosa, and exacerbation of multiple punched-out ulcers were observed (Figure 3). On day 23, the patient was diagnosed with severe ulcerative colitis, and prednisolone 30 mg and 5-amino salicylic acid 4,000 mg were initiated. Histopathological findings showed infiltration of inflammatory cells in the entire mucosa, crypt abscess, and a decrease in goblet cells, indicating Matts grade 4 ulcerative colitis. CMV-positive cells were observed upon immunohistochemical staining, and she was diagnosed with ulcerative colitis complicated with CMV colitis. CMV-positive cells were continuously detected; therefore, ganciclovir

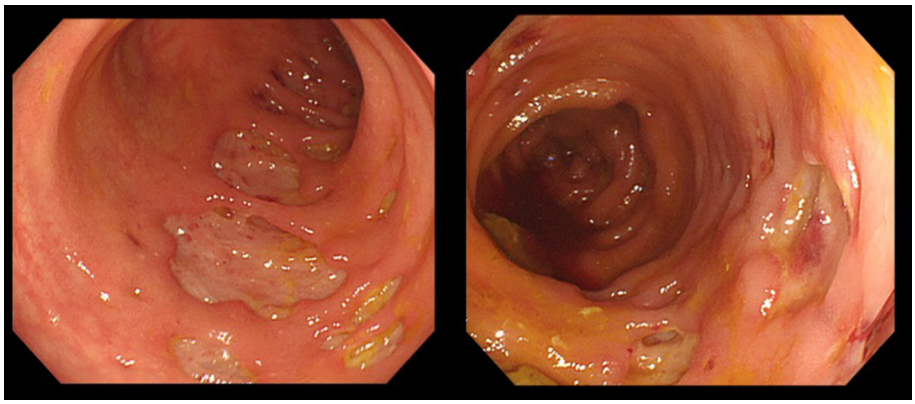

Figure 3 Third colonoscopy findings.
A complete loss of vascular pattern, easy bleeding of the crude mucosa, and exacerbation of multiple punched-out ulcers were observed.

was repeated. On day 31, the patient's fever was reduced, and diarrhea and bloody stools had disappeared. The bottom of the ulcer had shrunk during the fourth colonoscopy on day 44. She was discharged on day 61 and did not report any relapse of symptoms.

Discussion

This case presented cytomegalovirus colitis with a newly diagnosed severe ulcerative colitis. In CMV colitis, CMV-infected cells first form intranuclear inclusion bodies and become massive cells. CMV colitis is believed to cause vasculitis and microcirculatory disorders, resulting in gastrointestinal mucosal disorders[1]. Cases of CMV colitis in patients with inflammatory bowel disease have often been reported. Kaufman *et al.* reported that the median time from the onset of ulcerative colitis to the onset of concurrent CMV colitis was 12 months in 22 patients with ulcerative colitis[2]. Papadakis *et al.* reported that CMV infection developed in 10 patients with drug-resistant inflammatory bowel disease, exacerbating colitis[3]. Ishikawa *et al.* reported that the characteristics of ulcerative colitis complicated with CMV colitis were symptoms that worsen rapidly, treatment resistance, and map-like or punched-out ulcers that were present on the lesion site[4].

In our case, infectious colitis other than CMV and tumors were negative. The patient had no history of abdominal surgery or laxative abuse. Although the patient had no medical history of immunodeficiency or inflammatory bowel disease, CMV colitis was suspected based on endoscopic findings. CMV antigenemia test was not performed because CMV colitis was confirmed via histopathological examination of the intestinal mucosa.

As in this case, CMV colitis is rarely associated with newly diagnosed UC. Fukasawa *et al.*[5] and Ishikawa *et al.*[4] reported that, in cases of chronic diarrhea, abdominal pain, and bloody stool, the initial colonoscopy and its histopathological and serological examinations have led to a diagnosis of a combination of initial ulcerative colitis and CMV colitis.

Shahani *et al.* reported a CMV colitis initially diagnosed with colonoscopy in a case of chronic diarrhea that was treated, but the gastrointestinal symptoms did not improve. Subsequently, a combination of Crohn's disease and CMV colitis was diagnosed based on the biopsy results of erythema nodosum[6]. Galiatsatos *et al.* reported 28 cases of CMV colitis in immunocompromised individuals, five of which developed inflammatory bowel disease after recovery from CMV colitis[7].

In our case, the possibility of ulcerative colitis was considered at an early stage from the second colonoscopy finding; however, since the diagnosis of CMV colitis was confirmed and the histopathological findings were not typical of ulcerative colitis, CMV colitis treatment took precedence. Treatment of CMV colitis did not improve gastrointestinal symptoms, and a third colonoscopy finally led to the diagnosis of ulcerative colitis. It remains controversial whether CMV significantly infected the already inflamed mucosa or if CMV triggered an immune hypersensitivity reaction, leading to clinically and histopathologically evident inflammatory bowel disease[8].

The recommended dose of prednisolone for severe ulcerative colitis is 40–80 mg[9]. Due to the small size of the patient, we chose the initial dose of 0.7 kg/kg of prednisolone.

Conclusion

It is important to suspect ulcerative colitis in immunocompetent patients who present with CMV colitis.

Conflicts of interest: The authors have no potential conflicts of interest related to this study.

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