

Cytomegalovirus Infection in an Immunocompetent Host Presenting With Partial Bowel Obstruction

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Abstract

Cytomegalovirus (CMV) infection in immunocompromised patients is associated with significant morbidity and mortality particularly among transplant recipients and patients infected with HIV. CMV infection is generally asymptomatic in immunocompetent hosts, but can rarely present with severe organ-specific complications including the gastrointestinal tract where it manifests as diarrhea and abdominal pain. We present a case of CMV infection in an immunocompetent patient who presented with bloody diarrhea and was found to have bowel obstruction due to a rectal stricture. This case highlights the importance of considering CMV infection in the differential diagnosis of colonic obstruction secondary to rectal strictures.

Keywords: Cytomegalovirus; Colitis; Intestinal obstruction

Introduction

Cytomegalovirus (CMV) infection usually affects immunocompromised patients. It can have direct or indirect effects in these patients [1]. Direct effects include bone marrow suppression, myocarditis, gastrointestinal disease, hepatitis, pancreatitis, nephritis, retinitis, encephalitis and pneumonia [2, 3]. The main indirect effects include acute and chronic graft rejection, accelerated atherosclerosis, particularly in heart transplant patients, secondary bacterial or fungal infections and decreased graft and patient survival [1-3]. When CMV affects immunocompetent individuals, it is generally asymptomatic. Rarely can it cause serious morbidity and mortality in these individuals where it most commonly presents with diarrhea, fever and

abdominal pain [4]. Isolated cases of esophagitis [5], ileitis [6], gastritis [7] and colonic obstruction [8] have been reported. We report the case of an immunocompetent patient who presented with manifestations of partial intestinal obstruction due to a rectal stricture that was attributed to pathologically confirmed CMV infection.

Case Report

A 50-year-old man with a history of essential hypertension and aortic valve replacement presented with intermittent abdominal pain and loose stools for 2 months. Two to three weeks before the presentation, the patient noted bleeding per rectum. The abdominal pain increased in intensity, became generalized and was associated with tenesmus. There was no history of fever, nausea, or vomiting. On physical examination, the patient had signs of dehydration with a blood pressure of 95/60 mm Hg, pulse of 110 beats per minute, and dry mucus membranes while temperature was normal. There were no oral or skin lesions. The abdomen was mildly distended with generalized significant tenderness, rebound and guarding. The liver and spleen were not enlarged. Digital rectal exam revealed fresh blood and no palpable lesions. The rest of the systematic examination was unremarkable.

Laboratory investigations revealed that hemoglobin was 10.8 g/dL, white blood cell count was 27,000/ μ L, absolute neutrophil count was 24,000/ μ L, and C-reactive protein was 135 mg/L. Iron studies were consistent with iron deficiency anemia. Blood cultures were negative while blood glucose and kidney and liver function tests were normal. X-ray of the abdomen showed multiple air fluid levels suggestive of bowel obstruction. Computerized tomography (CT) scan of the abdomen showed distention of the entire colon with air and fecal matter and circumferential diffuse wall thickening of the left colon from the splenic flexure to the recto-sigmoid region (Fig. 1). Colonoscopy showed a significant stricture about 5 cm from the anal verge surrounded by severe ulceration. It was not possible to pass the colonoscope so it was replaced by an ultra-slim gastroscope which passed the stenosis. There was another area of severe ulceration at the level of 32 cm from the anal verge. The rest of the left colon and transverse colon appeared normal and further studies were limited as the procedure was completed with a gastroscope. Multiple biopsies from the

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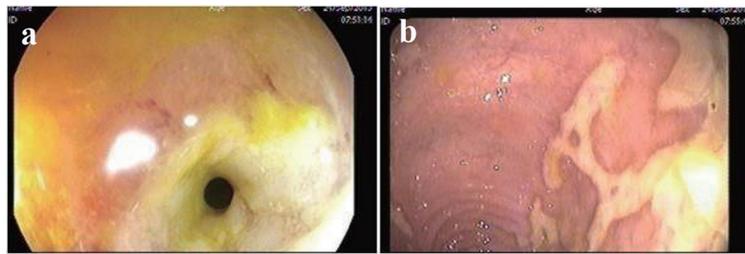


Figure 1. (a) Rectal stricture above the anal verge. (b) Severely skipped ulcerative lesions.

stricture and the ulcerated lesions showed nuclear inclusions and the immunohistochemical stain was consistent with CMV (Fig. 2). Serum CMV IgG antibody was positive and CMV polymerase chain reaction showed 4,728 copies/mL while serology for hepatitis B, hepatitis C and HIV was negative.

Surgical intervention was regarded as risky given the possibility of perforation. Intravenous ganciclovir was started, after which there was significant clinical improvement with reduction in abdominal pain and decrease in the frequency of bowel motions. After 2 weeks of ganciclovir, oral valganciclovir was continued for 4 weeks. A repeat polymerase chain reaction test for CMV was negative. The patient was scheduled for a repeat colonoscopy after a few weeks; however, he did not return for follow-up.

Discussion

CMV is a member of B-herpes virus group that spreads predominately by sexual transmission. Other modes of transmission include vertical transmission from the infected mother to the fetus, transfusion of blood products, and close contact such as household members and children in day care centers [9]. Symptomatic CMV disease in adults generally represents reactivation of a latent infection when T-lymphocyte mediated immunity is compromised or reinfection with another novel exogenous strain [10]. The prevalence of asymptomatic CMV infection, marked with IgG antibodies, ranges from 40% to 100% throughout the world, with highest rates observed in

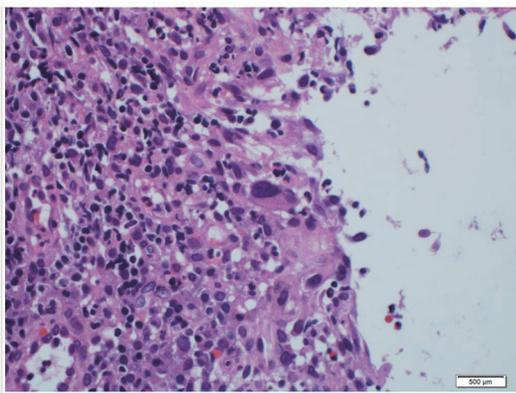


Figure 2. Histopathological examination of biopsy from the rectum showing findings consistent with cytomegalovirus.

Asia and Africa [11].

Gastrointestinal involvement with CMV in the immunocompetent host, although rare, but can cause significant morbidity and mortality. It can be localized or extensive and can cause colitis [4], esophagitis [5], gastritis [7] and colonic obstruction [8]. The most commonly affected site in the gastrointestinal tract in immunocompetent patients is the colon and rectum [12]. The most common symptoms at presentation are fever, abdominal pain and diarrhea. In addition to involvement of the gastrointestinal tract, isolated cases of CMV in immunocompetent individuals have been reported to cause encephalitis, Guillain-Barre syndrome, transverse myelitis, anterior uveitis, and pneumonitis [13-17].

Poor prognostic features of CMV infection include male gender, advanced age, need for surgical intervention and presence of immune-compromising medical conditions. CMV colitis in the immunocompetent host can occur in the setting of a primary infection but reactivation also occurs commonly in patients with increased length of hospital stay or those requiring care in intensive care units [18]. There are no published studies on the effect of antiviral prophylaxis of critically ill CMV-seropositive patients on survival or outcomes. Complications of CMV colitis include massive hemorrhage, toxic megacolon, perforation, and inflammatory bowel disease [19-21].

Only one case of colonic obstruction secondary to CMV-associated colonic stricture has been reported [8]. The described patient presented with left lower quadrant abdominal pain and on CT scan he was found to have a stricture in the descending colon-sigmoid colon junction. On sigmoidoscopy, it was not possible to pass the scope beyond the stricture. The case was managed surgically with removal of the strictured segment and end-to-end anastomosis. The histopathology report revealed an intranuclear eosinophilic inclusion suggestive of CMV. The case we report was different since there was a partial rectal obstruction and the patient responded clinically to medical therapy without the need for surgical intervention.

Antiviral therapies such as ganciclovir, valganciclovir, foscarnet and cidofovir have been studied and are used in the treatment of CMV in immunocompromised host. Although several case reports have documented successful therapy of previously healthy patients with severe manifestations of CMV infection [22, 23], no clinical studies are available for the use of antiviral therapy in the immunocompetent host.

It is important to note that the majority of immunocompetent patients who get infected with CMV recover without the need for antiviral therapy. Thus, the severity and potential

morbidity of CMV disease must be balanced against the risk of medication toxicity in deciding whether or not to use antiviral therapy in the immunocompetent patient. It is not known whether antiviral therapy could affect the course of the disease and decrease the need for surgical intervention.

In conclusion, we report the case of CMV infection causing bowel obstruction due to a rectal stricture in an immunocompetent individual. Even though CMV infection is commoner in immunosuppressed patients, clinicians should consider this possibility in the differential diagnosis of bowel obstruction in previously healthy persons.

Disclosure

The authors have no conflicts of interest to report.

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