Concurrent Cytomegalovirus Colitis and *Bacteroides fragilis* Peritonitis in a Peritoneal Dialysis Patient

KEY WORDS: *Bacteroides fragilis*; renal failure; peritoneal dialysis; peritonitis; cytomegalovirus colitis.

Editor:

A 59-year-old woman had been on peritoneal dialysis (PD) for 5 years. She presented with cloudy peritoneal effluent and generalized abdominal pain for 2 days. There was no fever, diarrhea, melena, or hematochezia. Physical examination revealed diffuse abdominal tenderness and rebound tenderness. Blood leukocyte count was 17,500/ μ L with 85.5% neutrophils. The peritoneal effluent leukocyte count was 320/ μ L with 92% neutrophils. Intraperitoneal (IP) cefazolin and gentamicin were administered.

On day 4, her abdominal pain persisted. The effluent leukocyte count rose to 845/ μ L with 90% neutrophils, but the initial cultures showed no growth. The antibiotics were changed to IP teicoplanin and ceftazidime; however, fever and diarrhea ensued. On day 7, the effluent culture repeated on day 4 yielded *Bacteroides fragilis*, and intravenous metronidazole was added. Due to a positive fecal occult blood test, the patient underwent a colonoscopy on day 11, which showed diffuse colitis and scattered ulcers in the ileocecal valve, cecum, and ascending colon. Microscopic examination revealed acute and chronic inflammation in the colonic mucosa without parasite or granuloma. After switching to ceftazidime and metronidazole, the blood and peritoneal effluent leukocyte counts decreased, but the patient still had fever and diarrhea. Due to persistent colitis and suboptimal control of infection, she underwent removal of the Tenckhoff catheter on day 23 and commenced hemodialysis.

The patient remained febrile and her diarrhea worsened. A cytomegalovirus (CMV) antigenemia assay on day 41 reported 12 positive cells/500,000 polymorphonuclear neutrophils (PMNs). Her HIV antibody testing was negative. She received 8 days of intravenous ganciclovir at a dose of 1.25 mg/kg 3 times per week until the disappearance of antigenemia. Six weeks later, fever and diarrhea relapsed. A sigmoidoscopy demonstrated multiple rectosigmoid ulcers. The pathology revealed neutrophilic infiltrates in the lamina propria; enlarged cells containing intranuclear inclusion bodies were identified and confirmed to be CMV by immunohistochemistry (Figure 1). Meanwhile, CMV antigenemia (3/500,000 PMNs) recurred; the diagnosis of CMV colitis with viremia was established. Reviewing the first colonic biopsy, intranuclear CMV inclusions were also recognized. The patient was treated with ganciclovir at the same dose for 3 weeks. Her symptoms and viremia resolved. No relapse of CMV colitis has been noted at 1-year follow-up.

We report for the first time on CMV colitis and its coexistence with peritonitis in PD patients. Invasive CMV disease most frequently involves the colon in immunocompetent hosts, and patients with renal failure are more susceptible (1,2). The

Figure 1 — Microscopic examination of the colon biopsy revealed 1 cytomegalic cell containing an intranuclear inclusion body in the inflammatory infiltrates within the lamina propria (arrow) (left). The intranuclear inclusions in the endothelial and stromal cells were positive for CMV by CCH2 monoclonal antibody staining (arrows) (right). CMV = cytomegalovirus.

endoscopic appearance of CMV colitis is variable; round-shaped ulcers are the most distinctive features, but not specific. The definitive diagnosis requires histopathologic evidence of viral cytopathic effects, and the sensitivity is augmented by immunohistochemistry or polymerase chain reaction (PCR) for CMV deoxyribonucleic acid (DNA) (3,4). The colitis in our patient was not self-limited, but subsequently improved with ganciclovir therapy. A meta-analysis of immunocompetent patients with CMV colitis reported a lower rate of spontaneous remission (18.8%) and a mortality of 56% in individuals with renal failure, diabetes mellitus, pregnancy, or untreated cancer (1). Antiviral therapy is probably beneficial to patients with comorbidities or persistent symptoms. In conclusion, the presence of *B. fragilis* in PD peritonitis is more commonly associated with intra-abdominal pathologic states, and CMV colitis should be considered even in the absence of immunosuppression.

DISCLOSURES

The authors have no financial conflicts of interest to declare.

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