Peritonitis Following Colonoscopy in a Peritoneal Dialysis Patient

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A 65-year-old woman on continuous ambulatory peritoneal dialysis (CAPD) developed blood-tinged dialysate and bacterial peritonitis following a colonoscopic polypectomy. She grew multiple anaerobic organisms in her dialysate despite antibiotic prophylaxis with vancomycin and gentamicin prior to the procedure. This case confirms the need for broad spectrum antibiotic prophylaxis prior to colonoscopic procedures, especially if polypectomy is planned. The antibiotic chosen should cover anaerobes as well as gram-positive and gram-negative enteric organisms. We suggest the use of ampicillin, clindamycin, and an aminoglycoside antibiotic for this prophylaxis.

KEY WORDS: Peritonitis; colonoscopy; antibiotic prophylaxis; anaerobes.

Peritonitis is a well-recognized complication of peritoneal dialysis. The most common causes of peritonitis are probably touch contamination and peritoneal catheter infections. However, the colon is also felt to be a potential source of dialysate contamination, especially in patients who have diverticulitis (1). Peritonitis subsequent to colonoscopic polypectomy has been reported (2-4). At present, there are few guidelines regarding prophylaxis in peritoneal dialysis patients undergoing colonoscopy. Published recommendations include emptying the peritoneal cavity of dialysate and administering parenteral antibiotics in order to minimize the potential risk of procedure-induced peritonitis in these patients (2-5).

We report a case of a patient who developed peritonitis due to anaerobic organisms following a colonoscopic polypectomy despite prophylactic administration of vancomycin and gentamicin. Our experience, coupled with available case reports, suggests that broad spectrum antibiotics, including coverage for anaerobes, should be administered prior to colonoscopic procedures in patients on continuous ambulatory peritoneal dialysis (CAPD).

CASE REPORT

The patient was a 65-year-old black woman with end-stage renal disease due to diabetic nephropathy, who was maintained on CAPD. She was hospitalized for severe dyspnea on exertion, paroxysmal nocturnal dyspnea, and pedal edema present for several weeks. In addition, she noted intermittent bright red rectal bleeding. A hematocrit, drawn as an outpatient, was 21% (the patient’s usual was 28-29%). On the morning of admission, the patient noted that the toilet bowl was filled with blood. She reported passage of bloody mucus, rectal urgency, and incontinence. Previous evaluation for hematochezia included a normal barium enema and a proctoscopy, which revealed large internal hemorrhoids.

Physical examination on admission revealed an elderly obese woman, who was volume overloaded with peripheral edema. There was a grade II/VI systolic ejection murmur at the apex and lower left sternal border, without cardiac gallops. The abdomen had normal bowel sounds, was soft, nontender and without masses. Rectal exam revealed decreased sphincter tone, no masses, and brown stool which was guaiac negative.

The patient’s volume overload was corrected by using increased concentration of peritoneal dialysate. She was transfused with 3 units of packed red blood cells. A colonoscopy was scheduled. Because of her heart murmur, she was given vancomycin 1 g and gentamicin 90 mg intravenously on call to the colonoscopy suite. Her peritoneal cavity was drained of dialysate prior to the procedure.

The colonoscopy was performed with some technical difficulty because the colonoscope coiled in the distal sigmoid colon. Findings included an 8 to 10 mm sessile, friable polyp in the ascending colon that was removed by hot forceps, and a 1.0 cm pedunculated polyp in the mid transverse colon that was removed by snare electrosurgery with good hemostasis. The colonoscope had to be removed at this point in order to retrieve this polyp. On reinsertion, in the region where the colonoscope coiled when it was first inserted (at 26-28 cm from the anal verge), the tissue was noted to be macerated with mucosal and submucosal hemorrhages. Colonoscopy was terminated at this point be...
cause of concern that this could represent a mucosal tear or perforation.

After the procedure, peritoneal dialysis was resumed and gentamicin 5 mg/L was added to each exchange. Two to three hours after the colonoscopy, the patient developed mild diffuse abdominal tenderness and mildly decreased bowel sounds. Abdominal films showed no free air. Her dialysate, drained 6 h following the procedure, was blood-tinted with 8950 red blood cells and 68 white blood cells per μl (57 polymorphonuclear cells). Gram stain of the fluid revealed no organisms. Intra venous clindamycin was added to the intraperitoneal gentamicin to cover anaerobic organisms.

The following morning a gastrograffin enema was performed which demonstrated no perforation. The preliminary culture of the peritoneal fluid grew gram-negative rods after 3 days, and the patient was discharged, clinically improved, on gentamicin 5 mg/L intraperitoneally with each exchange. Subsequently, the peritoneal fluid grew four types of nonfragilis Bacteroides species. The patient was treated with oral metronidazole for 10 days, with resolution of the peritonitis.

DISCUSSION

Colonoscopy is accompanied by gastrointestinal hemorrhage in 1% and by perforation in 0.1 to 0.325% of patients (6, 7). The incidence of colonoscopic-induced bacteremia is variable, reported from 0 to 27% of patients (8, 9). It has been suggested that antibiotic prophylaxis be given to immunosuppressed patients and those with known valvular heart disease or prostheses prior to colonoscopy (6, 10). Peritoneal dialysis patients represent a unique group who may be at increased risk of procedure-induced peritonitis for several reasons. These risks include the immune suppressed state in end-stage renal disease, the presence of a foreign body (the peritoneal catheter) and the culture medium of dialysate dextrose if the peritoneal cavity is not drained prior to the procedure.

Four cases of peritonitis occurring in peritoneal dialysis patients undergoing colonoscopy and polypectomy have been previously reported (2-5). In 3 of these episodes, there was no antibiotic prophylaxis, and each patient developed peritonitis with Escherichia coli. The fourth patient received cephalexin intraperitoneally for 3 days, starting 1 day prior to the colonoscopy, and developed enterococcal peritonitis on the third day (4). Only 1 case reported draining the peritoneal cavity of dialysate prior to the procedure (2). Our patient was treated with intravenous vancomycin and gentamicin prior to the colonoscopy, but developed an anaerobic peritonitis, which subsequently responded to appropriate antibiotic therapy.

Colonoscopy is routinely performed for a variety of reasons in patients on CAPD. To reduce morbidity in these patients, we suggest emptying the peritoneal cavity of dialysate prior to the procedure. In addition, we suggest the use of broad spectrum antibiotics, to include anaerobic, enterococcal and gram-negative coverage, especially if polypectomy is anticipated. Ampicillin, clindamycin, and an aminoglycoside antibiotic would give appropriate coverage for these organisms.

REFERENCES