

# *Campylobacter jejuni* Enteritis Mistaken for Ulcerative Colitis

Robert Cooper, MD, Sean Murphy, and David Midlick

Oxford, Mississippi

*Campylobacter jejuni* is the most common bacterial cause of gastroenteritis and is often missed by routine stool cultures. Patients may present with a clinical syndrome and endoscopic findings that are similar to acute

ulcerative colitis. Ciprofloxacin is currently the recommended antibiotic therapy.

**Key words.** *Campylobacter*; gastroenteritis; colitis, ulcerative; ciprofloxacin. *J Fam Pract* 1992; 34:357-362.

*Campylobacter jejuni* is the most frequent bacterial cause of diarrhea in the United States, but is often not detected by routine stool cultures.<sup>1</sup> With the increased use of endoscopy, it is important to note that campylobacter colitis is easily confused with ulcerative colitis.

## Case History

A 20-year-old white college football trainer reported to his family physician with a 2-week history of bloody diarrhea. He stated that he had had a 6.8 kg (15 lb) weight loss (10% of body weight) over the 2 weeks. There was no family history of ulcerative colitis or regional enteritis. A review of systems revealed a 2-week history of diffuse abdominal pain, but no skin rash, fever, or arthritis. Self-treatment with over-the-counter medications had been unsuccessful.

The patient was admitted to the hospital for rehydration and further diagnostic evaluation. A stool specimen was negative for ova and parasites but positive for both white blood cells and red blood cells. Urinalysis revealed an increased urine specific gravity of 1.03 and 2+ ketones. The patient's white blood count was  $6.9 \times 10^9/L$  (6900/cu mm); hemoglobin level was 164 g/L (16.4 g/dL), and the erythrocyte sedimentation rate was 30 mm/h. Manual differential of white blood count revealed 67% segmented, 1% bands, 27% lymphocytes, 2% monocytes, and 3% eosinophils. Stool cultures were ordered for *Campylobacter*, *Yersinia*, and *Clostridium difficile*.

Because of increasing blood loss through the rectum, the patient underwent colonoscopy, and multiple ulcerative regions were noted. No drop in the hematocrit was noted. The diagnosis given on the biopsy report was "ulcerative colitis, active phase." A second opinion was obtained; that pathologist also reported "severe diffuse colitis most consistent with ulcerative colitis."

After the results of the stool culture were reported as "no enteric pathogens," consultation was sought with a gastroenterologist, who reported seeing similar symptoms in cases of *Campylobacter jejuni* diarrhea. The patient was started on amoxicillin 250 mg by mouth three times daily. On recheck of the laboratory data, it was found that only the results of the routine stool culture and sensitivity tests had been reported, and that *Campylobacter jejuni* had in fact been cultured even though the routine culture (which tests for *Salmonella* and *Shigella*) had been negative.

The patient improved rapidly on the antibiotic regimen. He was discharged with a prescription for an additional 3 days of amoxicillin. One year later the patient had had no more episodes of diarrhea.

After discovering the correct diagnosis, the pathologist at the tertiary center presented slides of the case to his residents in a teaching conference. All of them identified the slides as a classic case of ulcerative colitis.

## Discussion

The microscopic appearance of *Shigella*, *Salmonella*, *Amoebiasis*, ischemic colitis, Crohn's disease, antibiotic-associated colitis, and ulcerative colitis can be quite similar. If the pathologist is alerted that *Campylobacter* is suspected,

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Requests for reprints should be addressed to Robert F. Cooper III, MD, 2200 South Lamar, Oxford, MS 38655.

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a Steiner or Dieterle stain could be done. These silver stains are not routinely done on colitis specimens.<sup>2-4</sup>

Laboratories in the United States that routinely check for *Campylobacter* have found that *Campylobacter* is the most common bacterial cause of gastroenteritis.<sup>1</sup> *Campylobacter* is found in up to 17% of all bloody stool specimens submitted for culture.<sup>1</sup> Ulcerative colitis, by contrast, has an incidence of 2 to 7 cases per 100,000 people in the United States.<sup>5</sup> *Campylobacter* frequently causes bloody diarrhea with numerous polymorphonuclear neutrophils in the stool. *Campylobacter* may be isolated from the blood of infected patients, and *Campylobacter* produces a cytotoxin and an enterotoxin that may account for cases in which watery diarrhea occurs. Approximately 97% of patients stop excreting the organism within 4 to 7 weeks, but the other 3% may continue to excrete it for several years. Carriers are far more numerous in tropical countries than in the United States.

*Campylobacter jejuni* is usually transmitted through contaminated food, milk, or water. Unlike other foodborne causes of gastroenteritis, such as *Salmonella* and *Staphylococcus*, *Campylobacter* does not multiply in food. It is thought to be transmitted sexually in the homosexual population.<sup>6</sup>

A prodromal illness and blood in the stool suggest *Campylobacter* infection. Usually the prodrome consists of headache, fever, and malaise for 1 to 2 days. Following this stage is a period usually lasting from 1 day to 1 week or longer of abdominal pain, watery or grossly bloody diarrhea, and fever to 40°C (104°F). This disease is usually self-limited over 4 to 5 days, but in 10% to 20% of cases it lasts 2 weeks, and even longer in 5% to 10% of cases.

In the worst cases there can be severe colitis with tenesmus, pseudoappendicitis from mesenteric lymphadenitis, toxic megacolon mimicking acute ulcerative colitis, or bacteremia. It is worth repeating, however, that most cases resolve without antimicrobial therapy.<sup>7</sup>

## Diagnosis

With a patient who has complained of bloody diarrhea, prolonged diarrhea with or without blood, having eight or more stools a day, or rapid weight loss, a stool examination should be done. If white blood cells are present, then both a routine stool culture and *Campylobacter* culture should be done.<sup>8</sup> This sequence of cultures is cost-effective even though a special medium (Campy-BAP, a thioglycolate base with vancomycin, trimethoprim, cephalothin, polymyxin B, and amphotericin B) and temperature (42°C) have to be used for the *Campylobacter* culture. It is cost-effective because the general stool and *Campylobacter* cultures are only done when white cells are

present in the initial examination. Also, *Campylobacter* causes more bacterial diarrhea than the *Salmonella* and *Shigella* organisms that are detected in the routine stool examination. Therefore, a diagnosis of the patient can be accomplished relatively quickly and economically if the preceding culture is used.<sup>9</sup> The differential diagnosis of *Campylobacter* diarrhea includes ulcerative colitis and *Salmonella*, *Shigella*, *Escherichia coli*, and *Clostridium difficile* enteritis.

## Treatment

For mild cases of gastroenteritis, treatment is limited to maintaining the patient's electrolyte and fluid levels. Oral electrolyte and glucose solutions such as Gatorade will be helpful. In at least one study, strong antidiarrheal agents such as loperamide tended to prolong the illness.<sup>10,11</sup> They should not be used in patients with blood in the stool or high fever.<sup>12</sup> Bismuth preparations can provide some symptomatic relief and should be tried before stronger agents. One expert recommends two Pepto-Bismol tablets chewed every one-half hour, with up to eight doses administered initially.<sup>13</sup> In more severe cases, ie, those patients having fever, bloody diarrhea, and more than eight stools per day, or those in which diarrhea persists for more than 1 week or steadily worsens, treatment may be started immediately after stool cultures are obtained.<sup>10</sup>

While awaiting the results of the cultures, ciprofloxacin may be a good choice for treatment of a worsening patient. In a study<sup>14</sup> of 38 cases of bacterial diarrhea including 19 patients with *Campylobacter jejuni*, 3 with *Shigella* species, and 16 with *Salmonella* species, treatment with ciprofloxacin resulted in negative stool cultures in all patients within 48 hours. Relapse occurred in four of the patients with salmonellosis within 3 weeks after the end of treatment. When the results of the cultures are obtained, the most therapeutic and cost-effective treatment may then be decided. Ciprofloxacin, however, is contraindicated in pregnant women and children.<sup>15</sup> Other antibiotics that may be useful once the diagnosis of *Campylobacter jejuni* is established include erythromycin (the drug of choice in children), doxycycline, furazolidine, and amoxicillin.<sup>11,16-23</sup>

## Summary

A patient with severe prolonged diarrhea with stool positive for white blood cells but negative for ova and parasites should have comprehensive stool culture performed that include examination for *Campylobacter*. Ciprofloxacin 500 mg by mouth twice daily for 5 days is the

suggested therapy for *Campylobacter jejuni*, and if the patient's condition is severe enough, it can be started while the cultures are pending. One must always remember that the microscopic biopsy appearance and clinical presentation of *Campylobacter jejuni* and ulcerative colitis are quite similar.

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