
Case 6.1

Yersinia Enterocolitis

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Background

Yersinia species are gram-negative coccobacilli that are facultative anaerobes. *Y. enterocolitica* and *Y. pseudotuberculosis* are the species that most commonly cause enterocolitis. Clinically, *Yersinia* enterocolitis leads to ileitis and mesenteric adenitis and thus is often misdiagnosed as acute appendicitis. Endoscopic findings include small ulcers mainly involving the ileocecal region such that the disease should be differentiated from inflammatory bowel disease [1, 2]. The final diagnosis is based on the isolation of *Y. enterocolitica* in the feces or biopsied tissues, e.g. obtained during endoscopic biopsy, and/or elevated serum antibody titers to the bacteria.

Clinical Presentation

A 14-year-old girl presented with a 1-week history of mild fever, abdominal pain, and watery diarrhea. On physical examination, tenderness without muscular defense or rebound tender-

ness was seen in the right lower abdomen. Laboratory data showed leukocytosis and increased C-reactive protein. Colonoscopy revealed a multiple, relatively uniform distribution of discrete, small round ulcers in the ileum end (Fig. 6.1), cecum (Fig. 6.2), and ascending colon (Fig. 6.3). Each small ulcer was covered with a yellowish exudate at the base with a raised erythematous margin. The small ulcers were distributed longitudinally and transversely. The swollen ileocecal valve (Fig. 6.4) and terminal ileum were also covered with the same diffuse small ulcers. The ulcers were not seen through the transverse colon to the sigmoid colon. The mucosa was edematous and mucosal vascularity was faint superficially (Fig. 6.5). No abnormal endoscopic findings were detected in the rectum (Fig. 6.6). Endoscopic biopsies taken from the terminal ileum and right-sided colon showed non-specific inflammation but granulomas were not identified histologically. Stool cultures were negative for various bacteria; ova, parasites, and *Clostridium difficile* toxin were also negative. Her medical history was unremarkable. She had no record of overseas travel before her symptoms developed. At first, a clinical diagnosis of inflammatory bowel disease (IBD) was made, and mesalazine (1200 mg/day) was prescribed. While her symptoms improved with the medication, she still complained of intermittent abdominal pain. Re-examination of the endoscopic biopsies disclosed an inflammatory change mainly consisting of neutrophils,

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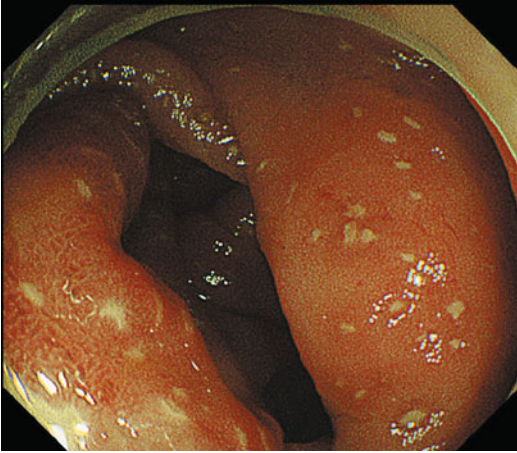


Fig. 6.1 Colonoscopy revealed multiple relatively uniform distribution of discrete, small round ulcers in the ileum end (Fig. 6.1), cecum (Fig. 6.2), and ascending colon (Fig. 6.3). Each small ulcer was covered yellowish exudate in the base with raised erythematous margin. The small ulcers distributed longitudinally and transversely

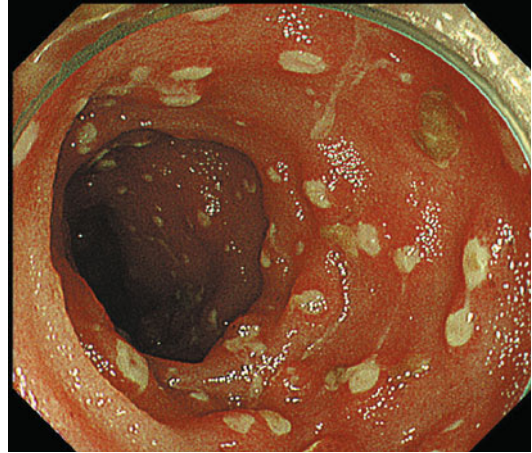


Fig. 6.2

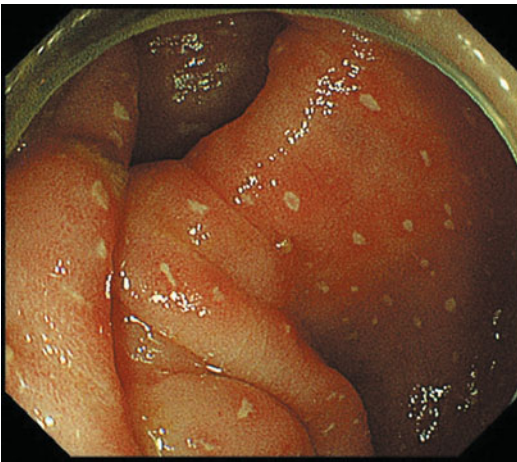


Fig. 6.3

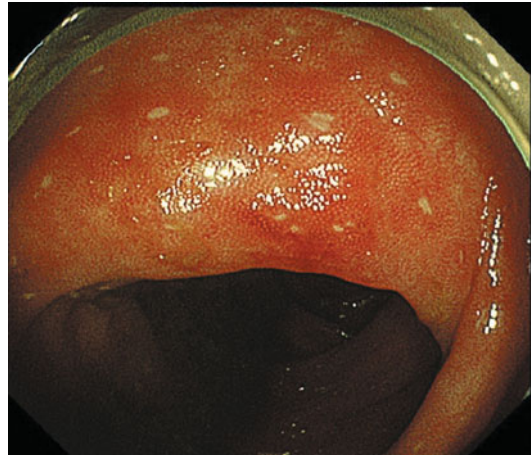


Fig. 6.4 The swollen ileocecal valve was also covered with same diffuse small ulcers

which suggested infectious enterocolitis rather than IBD (Fig. 6.7). Considering the involved sites and endoscopic findings in addition to the negative stool culture, a diagnosis of *Yersinia* enterocolitis was suspected. A serologic test revealed increased serum IgM antibody to *Y. enterocolitica* (1:320 in the bacterial agglutination test). A fluoroquinolone (levofloxacin hydrate, 500 mg/day) was prescribed for one week. Her symptoms subsided thereafter. A focused history-taking disclosed that she had not eaten un-

cooked meat food or unpasteurized milk, but she did have two dogs in her house, which suggested cross-contamination, although no one in her family exhibited similar symptoms.

Open Issues

There are no distinct clinical, radiologic, hematologic, or chemical findings that confirm yersiniosis. Generally, the diagnosis is established by culture isolation of the organism. Although stool culture is the most preferred method in the clinical setting, the cold-enrichment technique is necessary for culturing *Yersinia* species, which sometimes

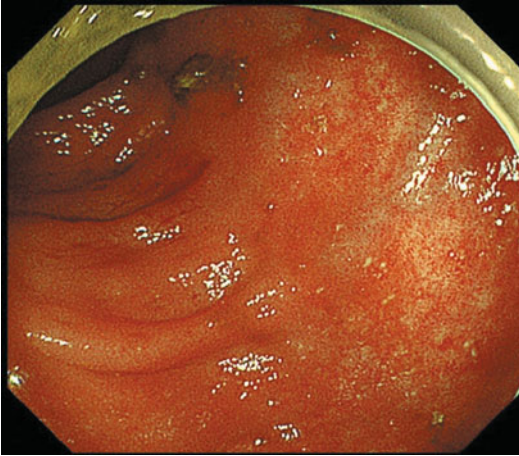


Fig. 6.5 Although no ulcer was seen through the transverse colon to the sigmoid colon, the mucosa was edematous and mucosal vascularity was faint superficially

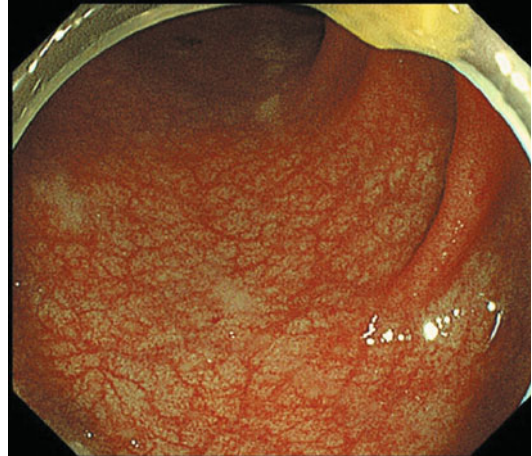


Fig. 6.6 No abnormal endoscopic finding was seen in the rectum

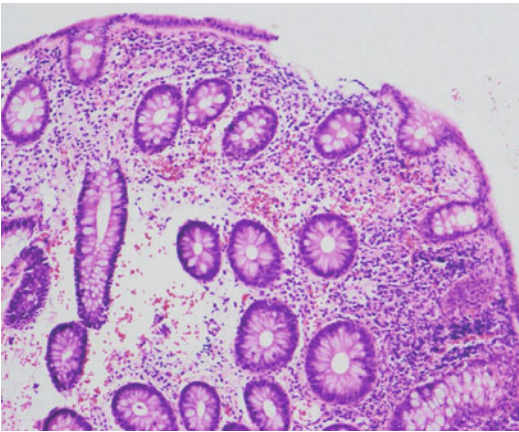


Fig. 6.7 The endoscopic biopsies disclosed that the inflammatory change mainly involved neutrophils, which suggested infectious enterocolitis rather than IBD

results the in failure of isolation [3]. In this case, elevated antibody titers are of high diagnostic value if the disease has been included in the differential diagnosis.

References

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2. Katz JA (1998) At the focal point... *Yersinia enterocolitica*. *Gastrointest Endosc* 48(1):61
3. Pai CH, Sorger S, Lafleur L, Marks MI (1979) Efficacy of cold enrichment techniques for recovery of *Yersinia enterocolitica* from human stools. *J Clin Microbiol* 9:712-5

Multiple Choice Questionnaire

1) How do you define *Yersinia Enterocolitica*?

- a. gram-negative coccobacilli
- b. gram-positive coccobacilli
- c. parasite
- d. gram-negative bacterium
- e. virus

2) Which are the most common endoscopic findings of *Y. Enterocolitica*?

- a. small ulcers of the ileocecal region
- b. deep ulcerations of the terminal ileum
- c. aftoid lesions of the terminal ileum
- d. deep colonic ulcerations

3) How can you detect *Yersinia* infection?

- a. isolation in the feces
- b. endoscopic biopsy
- c. elevated serum antibody titers
- d. all of them