Pseudomembranous colitis in a child

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ABSTRACT

A 7-year-old male child with a history of fever of 1-month duration, treated with ceftriaxone for 10 days, developed foul-smelling bloody loose stools associated with severe abdominal cramps. Colonoscopy revealed yellowish-white pseudomembranes suggestive of pseudomembranous colitis which is uncommon in pediatric age group.

Key words: *Child, Colitis, Pseudomembranous*

Asymptomatic carriage of *Clostridium difficile* is common during infancy and childhood. The incidence of pseudomembranous colitis is only 2.5–3.7 cases per 1000 admissions [1,2]. We present a case of pseudomembranous colitis in a child.

CASE REPORT

A 7-year-old male was brought to the hospital with a history of intermittent high-grade fever of 1-month duration, associated with chills and rigors. He was treated at a local hospital for enteric fever with intravenous ceftriaxone. After receiving ceftriaxone for 10 days, the child developed severe pain in the abdomen, foul smelling, watery loose stools 10–12 times per day, and non-projectile, non-bilious vomiting. Later, he started passing frank blood in stools associated with severe abdominal cramps. The child received ofloxacin and metronidazole for 3 days with no improvement and was referred to our hospital for further evaluation.

On examination, the child had a temperature of 102°F, a pulse rate of 120/min, severe dehydration, and a blood pressure of 90/60 mmHg. Abdominal examination revealed diffuse tenderness but no guarding, rigidity, or abdominal distension. There was hepatomegaly but no splenomegaly. Normal bowel sounds were present. Other symptoms were unremarkable.

The hemoglobin level was of 11.1 g%, and the erythrocyte sedimentation rate was 40 mm in the 1st hour. The total white cell count was 10,100/cu mm with 70% neutrophils, and the platelet count was 214,000/cu mm. The prothrombin time and the activated partial thromboplastin time were within normal limits. The urine routine and urine culture reports were normal. The quantitative buffy coat malaria test and the Widal test were negative. Liver function test and renal function test were within normal limits. Stool microscopy revealed plenty of inflammatory cells, and the occult blood was positive. Human immunodeficiency virus serology was negative. X-ray erect abdomen showed gaseous distension of colon with no air fluid levels. The ultrasound scan of the abdomen revealed a vague intestinal mass.

The differential diagnoses considered were acute bacillary dysentery, inflammatory bowel disease, and pseudomembranous colitis. Stool culture was negative for enteric pathogens and *C. difficile*. Colonoscopy showed extensive congested mucosa with yellowish-white membranous flakes. Biopsy revealed focal necrosis of surface epithelial cells in crypts with neutrophilic infiltration, lymphoid aggregates, and normal glands in between. A diagnosis of pseudomembranous colitis was made, and the child was started on vancomycin while the metronidazole was continued. The child became afebrile and asymptomatic within 5 days of treatment, which was continued for a total of 10 days. Repeat colonoscopy revealed normal intestinal mucosa. On follow-up after 6 weeks, the child was doing well.

DISCUSSION

Pseudomembranous colitis is usually associated with the use of certain antibiotics, which changes the usual gut flora allowing overgrowth of *C. difficile* and rarely other organisms [1,2]. *C. difficile* is found in the bowels of 3–5% of healthy adults and in the bowels of 50% of healthy infants and children [1]. However, pseudomembranous colitis is uncommon in infancy and childhood despite the frequent asymptomatic colonization [1,2].

Clindamycin, lincomycin, ampicillin, and cephalosporin are implicated in most reported cases, but any antimicrobial agent may be responsible [2,3]. Symptoms range from loose stools to toxic megacolon and colonic perforation [2,4]. Symptoms usually occur 3–9 days after starting antibiotics [2,4]. In our patient, symptoms started after 10 days of antibiotics. Complete blood count will reveal leukocytosis [5]. Hypoalbuminemia is common [5]. Infants and young children commonly harbor *C. difficile* and its toxins in their stool, making it difficult to diagnose the disease in this age group [4,6]. Enzyme-linked immunosorbent assay screening

test that detects the enzyme glutamate dehydrogenase expressed at high levels by all strains of *C. difficile* has been shown to be highly sensitive, simple, and cost-effective [5].

Rigid proctosigmoidoscopy is diagnosed in 77% of patients while flexible sigmoidoscopy is diagnosed in 91% of patients [5]. On histopathology, the earliest sign is focal necrosis of surface epithelial cells in the glandular crypts, with neutrophilic infiltration and fibrin plugging of capillaries in the lamina propria and mucus hypersecretion in adjacent crypts. This leads to the formation of crypt abscesses. As the disease progresses, necrosis and denudation of the mucosa occur with thrombosis of submucosal venules [7].

The offending agent should be stopped. Although resolution of pseudomembranous colitis may occur in around 20% of patients within a few days of antibiotic discontinuation, treatment should be started immediately because of the potential morbidity of *C. difficile* infection [8]. Patients usually respond to 10–14 days of metronidazole or vancomycin therapy [8]. Probiotics have been found to be ineffective in either prevention or treatment of *C. difficile* infection [8]. Surgical intervention is indicated for complications such as toxic megacolon or perforation [8].

CONCLUSION

To diagnose pseudomembranous colitis, a high index of suspicion is required. Pseudomembranous colitis must be considered in infants and young children with acute diarrhea with a history of prior antibiotic treatment early recognition and prompt discontinuation of offending antibiotics, supportive treatment, and specific treatment with vancomycin or metronidazole rapidly relieves symptoms of patient and may be even lifesaving.

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