

Rectal Prolapse Complicated with *Clostridium difficile*-associated Pseudomembranous Colitis in a Child

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Abstract

Among the complications of *Clostridium difficile* (*C. difficile*) infection, rectal prolapse has been very rarely reported in children. We report a 29-month-old girl who presented with rectal prolapse complicated with *C. difficile*-associated pseudomembranous colitis following 3-week course of oral amoxicillin/clavulanic acid for treatment of acute otitis media. The patient complained of fever, abdominal pain and mucoid bloody diarrhea. She also showed a protruded and everted rectal mucosa with discrete white-yellowish exudative plaques. Abdominal CT scan revealed a diffuse wall thickening with mucosal enhancement of the rectosigmoid colon. Both stool culture and toxin assay for *C. difficile* were positive. Her symptoms were completely improved with oral metronidazole treatment. *C. difficile*-associated pseudomembranous colitis should be considered as a rare but possible cause of rectal prolapse in children who have recently received antibiotic therapy.

Key Words : Child, *Clostridium difficile*, Pseudomembranous colitis, Rectal prolapse

Introduction

Clostridium difficile (*C. difficile*) is the most common cause of antibiotic-associated diarrhea and is a common healthcare-associated pathogen among adults in Western countries, and is increasingly recognized as an important pathogen

in children [1]. The incidence of *C. difficile* infection has approximately doubled in adults and children over the past decade, with a particular rise in incidence among patients in the community [1-3]. The colonization of *C. difficile* leads to various clinical manifestations ranging from asymptomatic carrier to pseudomembranous colitis

(PMC) with bloody diarrhea, fever, and severe abdominal pain or toxic megacolon [3,4]. *C. difficile* infection is also known to be associated with morbidity and mortality that worsens with advancing age. However, community-acquired *C. difficile*-associated PMC is rare as compared to the hospitalized children with risk factors. Moreover, among the complications of *C. difficile* infection, rectal prolapse has been very rarely reported in children [5-7]. Here, we report a case of *C. difficile*-associated PMC in a child who presented with rectal prolapse.

Case Report

A 29-month-old girl presented to our pediatric emergency department with a history of mucoid,

bloody diarrhea and intermittent protruding mass from her anus. She had been diagnosed with acute otitis media and received oral amoxicillin/clavulanic acid over the preceding 3 weeks. And then, she developed fever, severe lower abdominal pain and a large amount of mucoid, bloody diarrhea with a frequency of nine to ten times per day. In addition, her parents found a protruding mass from her anus three times. On arrival, her vital signs were stable except fever of 38.3°C. On physical examination, her abdomen was mildly distended and hyperactive bowel sounds without tenderness on palpation. An anal inspection revealed a protruded and everted edematous rectal mucosa and multiple discrete white-yellowish exudative plaques of the pseudomembrane, suggesting PMC (Fig. 1). The protruded lesion could be returned by the manual reduction. Laboratory data showed a white blood



Fig. 1. Anal inspection showed a protruding, everted edematous rectal mucosa and multiple discrete white-yellowish exudative plaques of the pseudomembrane (arrows), suggesting pseudomembranous colitis.



Fig. 2. Abdominal CT scan revealed a diffuse wall thickening with mucosal enhancement of the rectum.

cell count of 12,230/mm³, a hemoglobin of 12.1 g/dL, a platelet count of 301,000/mm³ and C-reactive protein level of 0.92 mg/dL. Abdominal CT scan revealed a diffuse wall thickening with mucosal enhancement of the rectum and sigmoid colon (Fig. 2). Stool examination was negative for rotavirus and leukocytes, but positive for occult blood. Stool culture for *C. difficile* was positive and *C. difficile* toxin A/B was also detected. Amoxicillin/clavulanic acid was subsequently discontinued, and her symptoms were completely improved with oral metronidazole treatment for 10 days. The patient had been well and showed no evidence of recurrence or complication of rectal prolapse and PMC during the follow-up visits.

Discussion

C. difficile is a Gram-positive, spore-forming,

toxin-producing anaerobic bacterium and is acquired from the environment or by the fecal-oral route. Recognized risk factors for children acquiring *C. difficile* infection included antimicrobial therapy, use of proton pump inhibitors, repeated enemas, use of diapers, prolonged nasogastric tube insertion, gastrostomy and jejunostomy tubes, bowel stasis or obstruction, previous gastrointestinal tract surgery, renal insufficiency, and impaired humoral immunity [1,2]. Although these risk factors can also predispose to PMC, most cases of PMC in pediatric patients occur in previously healthy children [4]. The present case was also developed in a previously healthy child without any risk factors except antibiotic therapy.

PMC is caused almost exclusively by toxins produced by *C. difficile*, and is usually caused by the use of antibiotics. It is well known that ampicillin, amoxicillin, the second and third generation cephalosporins, and clindamycin are the antibiotics most frequently associated with the development of *C. difficile*-associated PMC [8]. Amoxicillin/clavulanic acid is one of the most frequently described antibiotics in the outpatient department for the treatment of acute otitis media in children. In our case, a 3-week course of oral amoxicillin/clavulanic acid therapy was needed to develop the PMC. The patients showed the typical symptoms of PMC such as bloody diarrhea, abdominal pain and fever followed by rectal prolapse. The exact mechanism of rectal prolapse complicated with *C. difficile*-associated PMC is still unknown. But, it can be suggested possible causes including increased intraabdominal pressure during fecal passage and decreased motility of the involved segment caused by wall thickening [9].

We could make a diagnosis of PMC based on the typical history of usage of antibiotics, characteristic findings of the rectal mucosa, and the

detection of *C. difficile* toxins in the stool. In particular, the patient's prolapsed rectal mucosa allowed us to visualize directly the typical white-yellowish exudative plaques of the pseudomembrane without endoscopic examination. Our case improved rapidly with discontinuation of causative antibiotics followed by administration of oral metronidazole for 10 days. Antibiotic-based therapies remain the mainstay of treatment for children with moderate to severe *C. difficile*-associated PMC [1-4,10]. In conclusion, we report a rare case of rectal prolapse as a complication of *C. difficile*-associated PMC in a 29-month-old child. *C. difficile*-associated PMC should be included in the differential diagnosis of rectal prolapse in children who have recently received antibiotic therapy.

Summary

The present case suggests that *C. difficile*-associated PMC should be considered as a rare but possible cause of rectal prolapse in children, especially when they have recently received antibiotic therapy. Discontinuation of causative antibiotics and oral metronidazole treatment remain the effective mainstay for mild to moderate *C. difficile*-associated PMC in children.

Conflict of Interest

The authors report no conflict of interest in this work.

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