CASE REPORT

Long-term, low-dose of clarithromycin as a cause of community-acquired Clostridium difficile infection in a 5-year-old boy

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Abstract

Clostridium difficile is one of the most common causes of antibiotic-associated diarrhoea. Despite C. difficile infection (CDI) has increased in all ages worldwide, episodes of CDI are often misdiagnosed due to the lack of clinical suspicion. Macrolides are also associated with CDI. Additionally, exposure to macrolides in the 12 weeks preceding infection is reported to be a significant risk factor of CDI in a child. We report here a 5-year-old Japanese boy who presented with acute onset of watery diarrhoea. He was diagnosed with community-acquired CDI induced by long-term (20 weeks), low-dose, oral clarithromycin for otitis media with effusion, and he recovered by conservative treatment. Physicians should be more cautious of community-acquired CDI in children who take long-term, low-dose macrolides, not to misdiagnose as diarrhoea by its side effect, and avoid unnecessary use of systemic antibiotics.

INTRODUCTION

Clostridium difficile infection (CDI) is one of the most common antibiotic-associated diseases. In the last decade, the incidence and severity of CDI as well as that of community-acquired CDI (CA-CDI) has increased globally at all ages, including children [1, 2]. Despite the increasing burden, episodes of CA-CDI are often misdiagnosed as diarrhoea by a side effect. The typical reason is the lack of clinical suspicion [3].

The most important risk factor for CA-CDI is antibiotic exposure, especially fluoro-quinolones, cephalosporin, clindamycin and ampicillin [4]. The probable risk factors for CA-CDI in children are unnecessary use of antibiotics, multiple antibiotics and a long duration of antibiotics [5]. Moreover, exposure to macrolides in the 12 weeks preceding infection is a significant risk factor of CDI in a child [6]. We report here CA-CDI in a 5-year-old boy who had long-term (20 weeks), low-dose, oral clarithromycin for otitis media with effusion (OME).

CASE PRESENTATION

A 5-year-old boy developed acute onset of watery diarrhoea and slight abdominal pain ~12 h before presentation. He experienced diarrhoea four times in half a day, and had non-worsening intermittent, abdominal pain. His medical history included prolonged OME, for which he took regular medications, including low-dose clarithromycin (5 mg/kg/day) for 20 weeks.
weeks. He did not have any prior hospitalization. There was no family history of immunosuppression or inflammatory bowel disease. He did not appear unwell, and had normal vital signs. At a physical examination, lungs were clear to auscultation and there was slight lower abdominal tenderness without peritoneal signs. Blood tests, X-rays and colon fibroscopy were not performed because his symptoms were not severe. The C. Diff Quik Chek Complete® assay of stool was positive for antigen and toxin. Bacterial cultivation of stool showed CDI. Therefore, mild CA-CDI by oral clarithromycin was diagnosed.

We stopped the patient's oral clarithromycin treatment as a conservative treatment for CA-CDI because his infection was classed as mild. Furthermore, we prescribed probiotics (Bifidobacterium, 3 billion colony-forming units/day for 2 weeks) for prevention of recurrent CA-CDI. Our patient's symptoms gradually resolved after 5 days when conservative treatment was started. His symptoms disappeared after 2 weeks and remained asymptomatic without recurrence. Eight weeks after onset, he had slightly loose stools once a day for 2 days. The C. Diff Quik Chek Complete assay showed that the stool was negative for C. difficile. His symptoms immediately disappeared and there has been no recurrence.

Our patient had no fever, unexplained watery diarrhoea, and no other risk factors (e.g. exposure to acid-blocking medications, family members with CDI or outpatient healthcare environment), except for orally taking long-term, low-dose macrolide antibiotics [20 weeks], low-dose clarithromycin induced CA-CDI in a child. Physicians should be more cautious of CA-CDI in children, not to misdiagnose as diarrhoea by its side effect, and avoid the unnecessary use of systemic antibiotics for OME.

**CONCLUSION**

We showed that long-term (20 weeks), low-dose oral macrolides induced CA-CDI in a child. Physicians should be more cautious of CA-CDI in children, not to misdiagnose as diarrhoea by its side effect, and avoid the unnecessary use of systemic antibiotics for OME.

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**CONFLICTS OF INTEREST STATEMENT**

No conflicts of interest.

**ETHICAL APPROVAL**

Written consent was signed by the patient’s parents in order to use the medical date for scientific purposes.

**GUARANTOR**

Hiroyumi Namiki.

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