Unusual association of diseases/symptoms

Constipation in *Clostridium difficile* infectionHameem I Kawsar,¹ K V Gopal,¹ Jamila Shahnewaz,² Hamed A Daw²¹Department of Medicine, Fairview Hospital, Cleveland, Ohio, USA;²Cleveland Clinic Cancer Center, Cleveland, Ohio, USA

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Summary

A patient presented to our hospital with worsening shortness of breath, cough and respiratory distress that slowly worsened over 7–10 days. She had a viral-like illness with runny nose and cough for 1 week, which became productive of yellowish sputum. She was treated with antibiotic and steroid with clinical improvement. Her leucocyte count continued to increase despite discontinuation of both antibiotic and steroid. All culture results returned negative. She did not have any abdominal pain or diarrhoea. Her stool was positive for *Clostridium difficile* toxin assayed by PCR. A CT of abdomen showed distension of cecum and proximal colon. She was treated with intravenous metronidazole, oral and rectal vancomycin and intravenous immunoglobulin. She developed multi-organ failure and died.

BACKGROUND

A case definition of *Clostridium difficile* infection (CDI) includes the presence of symptoms, usually diarrhoea, and either the stool test result positive for *C difficile* toxins or toxigenic *C difficile*, or colonoscopic findings of pseudomembranous colitis. Most of the patients with CDI usually present with diarrhoea but abdominal pain, fever and leucocytosis are present in fewer than half of them. CDI without diarrhoea is not uncommon in clinical practice, especially in critically ill patients, but is rare in medical literatures, probably due to under-reporting of cases.

CASE PRESENTATION

A Caucasian female in her 70s presented to our hospital with worsening shortness of breath, cough and respiratory distress that slowly worsened over 7–10 days. She had a viral-like illness with runny nose and cough for 1 week, which became productive of yellowish sputum. Her medical history was significant for hypertension, dyslipidaemia, diabetes, hypothyroidism, diastolic congestive heart failure, paroxysmal atrial fibrillation and chronic obstructive pulmonary disease (COPD). She was a current smoker with a 50 pack-year smoking history. Her review of system was unremarkable. On examination, she was afebrile, had decreased breath sounds and basal crackles bilaterally and mild pedal oedema. Her blood pressure was 188/104 mm Hg, heart rate was 101 beat/min and respiratory rate was 26 breaths/min. Laboratory test results were within normal limit except an elevated white blood cell (WBC) count of 14.35 k/ μ l, absolute neutrophil count of 10.91 k/ μ l, serum creatinine of 1.56 mg/dl and pro-BNP of 31 563 pg/ml. Chest x-ray showed mild bilateral congestion. She was clinically diagnosed with congestive heart failure and COPD exacerbation, and was initially treated with furosemide 40 mg IV twice daily, levofloxacin 750 mg IV every other day, methylprednisolone 40 mg IV every 8 h, carvedilol 3.125 mg orally twice daily, and breathing treatment with albuterol and ipratropium. Her breathing

gradually improved and her blood pressure returned to normal range.

Her hospital stay was complicated with altered mental status, atrial fibrillation with rapid ventricular response, acute respiratory failure and worsening renal function which was thought to be due to reduced renal perfusion secondary to atrial fibrillation and hypotension. Her WBC count continued to increase despite negative urine and blood culture and discontinuation of steroid. Levofloxacin was discontinued. She did not have any abdominal pain or bowel movement. She had history of regular bowel movement and her last bowel movement was 2 days before hospital admission. An abdominal CT showed marked distension of the cecum with the proximal portion measuring 13.7 $\times$ 8.5 cm in diameter (figure 1A, asterisk). Bisacodyl 10 mg suppository was used but failed to cause any bowel movement. Stool was manually disimpacted from the rectum and sent for *C difficile* toxin PCR assay because of a rising WBC count (figure 1B). She was empirically treated with metronidazole 500 mg IV every 8 h. Stool occult blood test was negative. A colonoscopy was deferred because of multiple co-morbidities, the high risk of perforation and poor bowel preparation. Surgical exploration was not done because of a potentially grim outcome. Her breathing worsened, requiring mechanical ventilation and worsening renal function required renal replacement therapy. Her stool was PCR positive for *C difficile* toxins. She was started on vancomycin 500 mg both via nasogastric tube and rectally every 6 h. She was also given one dose of 400 mg/kg intravenous immune globulin (IVIG). Because of her declining clinical condition, the family requested to withdraw life support and, she died.

DISCUSSION

According to the Society for Healthcare Epidemiology of America and the Infectious Diseases Society of America, a case definition of CDI should include the presence of symptoms (usually diarrhoea, defined as passage of three or more unformed stools in 24 or fewer consecutive hours) and either

Figure 1 (A) CT abdomen showing dilated cecum (asterisk). (B) Gradual increase in WBC count.

the stool test result positive for *C difficile* toxins or toxigenic *C difficile*, or colonoscopic findings of pseudomembranous colitis.¹ Most of the patients with CDI usually present with diarrhoea but abdominal pain, fever and leucocytosis are present in fewer than half of them.¹ CDI without diarrhoea is not uncommon in clinical practice, especially in critically ill patients, but is rare in medical literatures, probably due to under-reporting of cases. In a case series of five patients with cystic fibrosis, patients presented with abdominal distension, constipation or stool impaction.² Treatment with enema was unsuccessful in these patients and CT of the abdomen showed pancolitis. The diagnosis of CDI in these patients was confirmed by positive stool culture for *C difficile*, and treatment with anticlostridial agents resulted in prompt clinical resolution. Severe CDI may present without diarrhoea

when the right colon or cecum is involved or when there is paralytic ileus, but usually presents with severe abdominal pain and fever.³ Severe CDI is usually treated with IV metronidazole and oral vancomycin; rectal vancomycin is also recommended in complete ileus.¹ Delivery of vancomycin directly into the cecum via colonoscopically placed catheter has been reported.³ Successful use of IVIG in severe CDI has been reported^{4 5} but the results of a retrospective study did not support its use.⁶ A small clinical trial suggested that use of vancomycin causes modification of intestinal flora and helps to treat occasional case of idiopathic constipation but did not recommend its use.⁷ Our case illustrates a rare clinical situation where a patient developed severe CDI without any diarrhoea, abdominal pain or fever. Physicians should have a high degree of suspicion in diagnosing CDI in patients with an increasing WBC without any plausible explanation, even in the absence of diarrhoea, abdominal pain and fever.

Learning points

- ▶ CDI usually presents with diarrhoea but absence of diarrhoea does not exclude the diagnosis.
- ▶ Severe CDI may present without diarrhoea when the right colon or cecum is involved or when there is paralytic ileus.
- ▶ Severe CDI is usually treated with intravenous metronidazole and oral vancomycin; rectal vancomycin is recommended in complete ileus.

Competing interests None.

Patient consent Not obtained.

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