Paediatric *Clostridium difficile* pseudomembranous colitis: a complication of refractory constipation?

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DESCRIPTION

A 14-year-old girl presented to the emergency department with a 1-week history of a lack of bowel movements, intermittent fevers, malaise and fatigue, for which she only took antipyretics. She also had a 1-month history of diffuse abdominal pain, abdominal distention (predominantly on the lower abdomen), decreased appetite, and a 1.5 kg weight loss. She had a history of chronic constipation and daily faecal incontinence since she was 8 years old, which was inconsistently treated with unspecific laxatives and weekly enemas. There was no history of hospitalisation or medication use (antibiotics, Proton Pump Inhibitors or steroids) during the 6 months prior to presentation.

On admission, the temperature was 38.2°C; heart rate was 84 beats per minute; respiratory rate was 24 breaths per minute; and blood pressure measured 90/90 mm Hg (systolic pressure <5th percentile). Her height was 155 cm (38th percentile), weight was 32 kg (2th percentile) and body mass index was 13.3 (percentile 0). On physical examination she appeared toxic and wasted; conjunctival and generalised paleness were noted. The abdomen appeared significantly distended, and auscultation revealed decreased bowel sounds. A mass was palpated on the left lower quadrant, consistent with faecal matter in the rectum. Peritoneal signs were absent. Digital rectal examination revealed abundant faecal matter in the rectum. Mild pedal oedema was noted. The rest of examination was normal. Initial abdominal radiographs showed significant colonic distention and abundant faecal matter in the descending colon and rectum (figure 1). Initial laboratory tests were the following: leukocytes: 16.9 $10^3/\mu\text{L}$ (4.5–13.5); neutrophils: 82% (36.3–75.5); erythrocytes: 3.48 $10^6/\mu\text{L}$ (4.1–5.9); haemoglobin: 9.7 g/dL (10.9–15.7); haematocrit: 30% (36–45); reticulocytes: 2.7%; platelets 810 $10^3/\mu\text{L}$ (170–450); sodium:

133 mmol/L (138–145); gamma glutamyl transpeptidase: 42 UI/L (14–26); total proteins: 3.5 g/dL (6.3–8.6); albumin: 1.2 g/d (3.2–4.5). The rest was within normal limits.

The patient was diagnosed with severe malnutrition, toxic megacolon and faecal impaction. She was admitted for further management. Enemas, intravenous fluids and empirical antibiotics (ceftriaxone and metronidazole) were initiated. She was kept *nil per os*. During hospitalisation, urine and blood cultures did not grow pathogens; viral panel was negative; and faecal PCR was positive for *Clostridium difficile*. The colonoscopy showed signs of pseudomembranous colitis in the sigmoid and descending colon (figure 2). The biopsies confirmed the diagnosis of pseudomembranous colitis (figure 3). Ceftriaxone was discontinued, and metronidazole (30 mg/kg three times a day) was continued to complete a 10-day course. She remained stable during hospitalisation and was discharged due to clinical improvement with a double oral constipation therapy (Polyethylene Glycol 3355 34g q24, and senna 8.6 mg twice daily). The patient improved significantly in the following months.

We hypothesise that patients with refractory constipation may develop colonic stasis and a

Figure 1 Panels A and B (abdominal radiographs) show abundant faecal matter in the rectum and descending colon and significant colonic distention (up to 76.7 mm). Panel C (chest radiograph) shows colonic distention and elevation of both hemidiaphragms.

Figure 2 Panel A shows the sigmoid colon with a friable mucosa and a serpiginous ulcer that extends to the descending colon. Panels B, C and D show the descending colon with a patchy erythema and pseudopolypoid lesions, multiple erosions, exudate and a whitish pseudomembrane.

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Figure 3 Panels A and B show the colonic mucosa with H&E staining; an ulcer with abundant polymorphonuclear and lymphocyte infiltrate can be seen, as well as fibrin covering the mucosal surface.

disturbed colonic microbiome as in Hirschsprung disease. Thus, refractory constipation may be associated with future risk of *C. difficile* toxic megacolon.¹ More than 90% of patients with *C. difficile* infection clinically present with watery or bloody

diarrhoea.² To our knowledge, there is only one case report of an adult patient with *C. difficile* infection who presented with constipation.³

Learning points

- Paediatric patients with community-acquired *Clostridium difficile* infection may not have known comorbidities or risk factors for *C. difficile* infection, as in the case of our patient.
- Refractory constipation may be associated with future risk of *C. difficile* toxin megacolon.
- Paediatric patients with faecal impaction and systemic toxicity may be infected with *C. difficile*.

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