A 23-year-old man was diagnosed with Crohn's disease three months previously. At the time of diagnosis, active inflammation was observed for 10cm in the terminal ileum, and treatment with tapering prednisolone was commenced. After several weeks, inflammatory symptoms recurred while on a dose of 20mg prednisolone. Therefore, 40mg tapering corticosteroid was recommenced with the addition of 50mg azathioprine.

Two weeks later, he presented to the emergency department with severe abdominal pain, 15 episodes of bilious vomiting and five episodes of watery diarrhoea over a 24-hour period. This occurred in the context of treatment with 50mg azathioprine and 30mg prednisolone. Examination revealed tachycardia (114 bpm), fever (38 degrees C) and right lower quadrant abdominal tenderness. Laboratory investigations suggested a significant inflammatory process with a neutrophilic leukocytosis—neutrophils 18.2 (normal range 2–8x10^9/L), and C-reactive protein 153 (normal range 0–5mg/L). A stool specimen tested positive for *Clostridium difficile* antigen, confirmed by PCR, and treatment with oral metronidazole was commenced. This infection was presumed to be community acquired.

A colonoscopy was performed, with findings of altered vascularity, oedema, erythema and granularity throughout the colon, sparing the sigmoid and rectum. This was a technically limited study as the endoscope could not be advanced past the ileocaecal valve due to swelling. An MRI study of the bowel was undertaken, which revealed an ileal stricture, active inflammatory terminal ileitis and caecitis with involvement of the proximal ascending colon.

This episode was the first flare of Crohn's requiring hospitalisation in this gentleman's history, and represented a significant event with extensive bowel disease associated with *C. difficile* infection. A full recovery was made after treatment with intravenous hydrocortisone and metronidazole.

**Discussion**

The incidence of *C. difficile* infection (CDI) has been increasing in North America, Europe and Australasia. While previously considered a major nosocomial infection, community infection is now being increasingly recognised. Patients with inflammatory bowel disease (IBD) with CDI often present with more severe infections and experience poorer outcomes, including prolonged hospital stay, increased rates of colectomy and higher mortality.
Due to the high prevalence of *C. difficile* in IBD patients and the difficulty in discerning between IBD flare and infection,\(^6\,^8\) the American College of Gastroenterology (ACG) CDI Guidelines Task Force currently recommends routine testing for CDI in all IBD patients hospitalised with a disease flare.\(^6\) This is particularly important in IBD patients presenting with symptoms of diarrhoea. In patients without significant diarrhoea, the clinical utility of testing for CDI may be limited.\(^9\) This is because asymptomatic *C. difficile* carriage is relatively common in IBD patients.\(^6\,^9\) Routine testing may result in an increased number of false positives and possibly excessive treatment. Eradication of asymptomatic *C. difficile* is also not without risk. Incomplete treatment, re-colonisation with new strains and increased shedding of *C. difficile* spores have all been described in the general population.\(^9\)

Risk factors for CDI in the general population include recent antibiotic use, hospitalisation, age >65 and significant comorbidity.\(^2\,^5\,^7\,^8\) However, IBD patients tend to be younger, and commonly present with community-acquired infections.\(^6\,^8\,^9\) They have the additional risk factors of steroid use, recurrent hospitalisations and treatment with immune-modulating therapies.\(^2\,^8\) Antibiotic use does not appear to play such a major role in the development of CDI in patients with IBD,\(^6\,^8\) possibly due to pre-existing altered microbiota in these individuals.\(^8\)

Special consideration should be taken when making decisions about immune-modulating and biologic agents during active treatment of CDI.\(^4\,^6\,^8\) In these instances, ACG guidelines suggest that baseline therapy should be maintained at existing doses\(^9\) and escalation of immunosuppressive therapy should not be undertaken in the first 72 hours of treating CDI.\(^4\,^9\) This is a conditional recommendation based on low-quality evidence, and is associated with poorer outcomes in IBD patients treated with concurrent immunosuppressive and antibiotic therapies.\(^9\) Currently there is a paucity of international evidence concerning safety of changes in immune-modulating therapy while on antibiotic treatment for CDI.\(^2\,^8\)

In the general population, oral metronidazole is commonly used as the first-line antibiotic for mild-moderate CDI, with vancomycin reserved for severe, recurrent or refractory infections.\(^1\) In adults with IBD, however, those treated with vancomycin had a shortened hospital stay, fewer readmissions and a significantly reduced colectomy rate compared to metronidazole.\(^5\) In the first instance, supportive measures should be introduced for all patients affected by CDI, including rehydration, infective-isolation and rigorous hand-washing with soap and water, which is more effective than alcohol-based hand gels in eradicating *C. difficile* spores.\(^6\,^8\,^9\)

Newer treatments utilising faecal microbiota transplantation (FMT) in IBD patients have shown promising results with high cure rates detected in recurrent CDI, and with no adverse events yet reported in the literature.\(^4\,^9\) FMT should be considered for IBD patients with ≥3 recurrences.\(^9\)

In conclusion, this patient suffered from a severe flare of Crohn’s disease while on oral corticosteroid treatment. The potential role of *C. difficile* infection in this case is difficult to categorise as a causative or exacerbating factor, and this represents an ongoing challenge for the medical profession. The testing and subsequent treatment of CDI was indicated in this case, given the severity of symptoms and the presence of diarrhoea on presentation. Intravenous vancomycin may have been a better choice of antibiotic because of its improved outcomes in severe infections. Emerging evidence for faecal microbiota transplantation, new antibiotics and new immune-modulating therapies may alter current treatment practices.
Competing interests:
Nil.

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