

***Clostridium difficile* infection presenting as acute abdomen**

Omesh Goyal¹, Rajdeep Singh Chhina², Kanwaldeep Singh³, Jasdeep Singh³, Rama Gupta³, Kavita Sagar²

*Department of Gastroenterology¹, Radiodiagnosis², Microbiology³,
Dayanand Medical College and Hospital, Ludhiana, Punjab, India*

ABSTRACT

Clostridium difficile infection (CDI) is an important cause of infectious nosocomial diarrhoea. Widespread use of antibiotics has led to a dramatic rise in the incidence of CDI. However, a majority of the CDI cases are either misdiagnosed or undiagnosed because of low clinical suspicion or the use of diagnostic tests with low sensitivity. Although occurrence of diarrhoea in a patient who has recently received antibiotics is an important clue to the diagnosis of CDI, presentation of CDI with non-diarrheal symptoms like fever, pain abdomen or abdominal distention is known. We report a case of a 65 years old male who presented with acute abdomen in surgical emergency, was diagnosed to have CDI, and was successfully treated with vancomycin.

Keywords: Acute abdomen, *C.difficile* infection, pseudomembranous colitis

INTRODUCTION

Clostridium difficile (*C.difficile*) infection (CDI) is an important cause of infectious nosocomial diarrhea. There has been a dramatic rise in the incidence of CDI since 2000, together with an increase in CDI-related morbidity and mortality.¹ The current epidemiological knowledge of CDI is undermined by low levels of its awareness in many countries and marked variations in testing frequency and reporting.² The most important clue to the diagnosis of CDI is the presence of diarrhea in a patient who has recently received antibiotics. However, CDI can present with non-diarrheal symptoms like fever, pain abdomen or abdominal distention. We report a case of a 65 years old male who presented with history of abdominal pain and fever, was diagnosed to have CDI.

CASE REPORT

A 65 year male presented to surgical emergency department with chief complaints of abdominal pain and intermittent fever since 15 days. There was a history of passage of 1-2 episodes of small amount of semi-solid stool per day. There was also a history of sore-throat before the onset of these symptoms, for which he received some antibiotics from a local practitioner. There was no

significant past history, and there was no history of addictions. On examination, he was conscious, febrile and hemodynamically stable. Abdominal examination revealed abdominal distention (more in flanks), and mild tenderness in left lumbar region. Investigations revealed leucocytosis and normal renal and liver function tests. His abdominal X-rays revealed dilated colon with presence of air throughout the colon (Figure I). Contrast Enhanced Computed Tomography (CECT) abdomen was done



Figure I: X-ray abdomen (erect) revealing dilated colon with presence of air throughout the colon

Corresponding Author :

Dr Omesh Goyal,
Assistant Professor,
Department of Gastroenterology
Dayanand Medical College & Hospital, Ludhiana
(Punjab) - 141001
E-mail: goyalomesh@yahoo.co.in

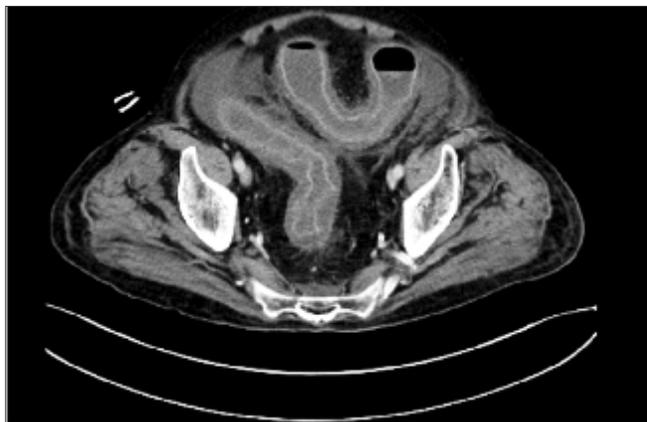


Figure II: CECT abdomen showing colonic wall thickening in sigmoid colon and rectum.

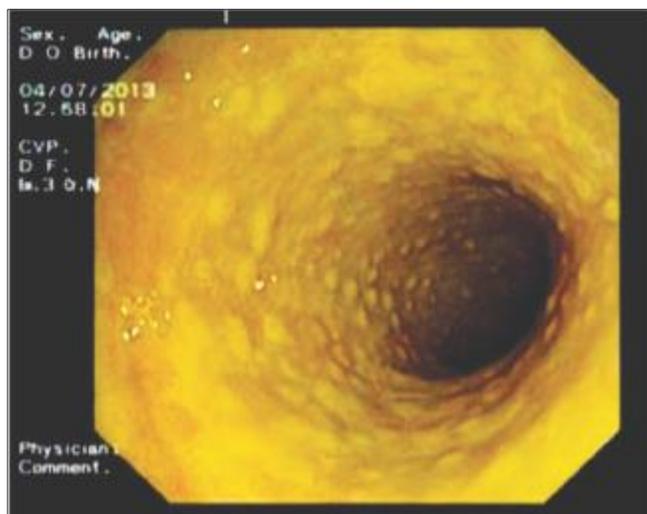


Figure III: Sigmoidoscopy image showing multiple, dirty yellow plaques of varying sizes (2-5 mm), in sigmoid colon, coalescing to form pseudomembranes.

which revealed colonic wall thickening in sigmoid colon and rectum (Figure II). To determine the cause of distal colitis, sigmoidoscopy was done which revealed multiple dirty yellow plaques of varying sizes (2-5 mm), in sigmoid colon, which were coalescing to form pseudomembranes in rectum, typical of pseudomembranous colitis (PMC) (Figure III). Biopsy from the lesion was also suggestive of PMC. Stool samples for *C.difficile* toxin A & B were also positive. The patient was treated with vancomycin 250 mg 6 hourly through nasogastric tube and also through per rectal route for 14 days. He showed a symptomatic improvement with decrease in fever, pain and abdominal distention, and the leucocyte count normalised.

DISCUSSION

C.difficile is an anaerobic, Gram-positive, spore-forming, toxigenic bacillus. It is recognized as the primary cause of nosocomial infectious diarrhea in developed countries.^{1,3} CDI is defined by the presence of symptoms (usually diarrhea) and either a stool test positive for *C.difficile* toxins or positive culture, or colonoscopic/histopathological findings revealing PMC.³

Various steps in the pathogenesis of *C.difficile* infection include: (i) alteration of the normal colonic microflora by antibiotics or rarely, chemotherapeutic agents; (ii) oral ingestion of *C.difficile* or its spores with resultant colonization of the large intestine; (iii) release of toxins A and B into the colonic lumen; (iv) binding and internalization of toxins by colonocytes leading to colonic damage (colitis). The most important host factor determining whether a patient remains an asymptomatic carrier or develops colitis is the immune response to *C.difficile* toxins.³ In addition to antimicrobial therapy, increasing age and presence of comorbidities are important risk factors for CDI.⁴ Our patient had 2 risk factors for developing CDI i.e. old age and use of antibiotics.

The most common symptoms of CDI include frequent passage of loose or watery bowel movements with presence of mucus or occult blood.³ In addition, patients may have fever, leukocytosis and cramping abdominal pain. Patients with more severe disease can develop a colonic ileus or toxic dilatation and with minimal or even no diarrhea.⁵ The only clues to the diagnosis of CDI in such patients include high fever, leukocytosis, abdominal pain, tenderness, and distention. Our patient presented with fever and abdominal pain, with no diarrhea. The CT findings were suggestive of distal colitis and sigmoidoscopy showed the classical picture of CDI with presence of pseudomembranes.

Of the various microbiological tests available to diagnose CDI, enzyme immunoassays (EIAs) to detect toxin antigens in stool are most commonly used. These tests are relatively inexpensive, quick (2 to 12 hours) and highly specific, although have relatively low sensitivity (about 90%).

Treatment of CDI includes withdrawal of antibiotics, if possible. Oral or intravenous metronidazole (250-500 mg) three-four times a day for 10-14 days is the recommended therapy.³ Vancomycin should be

avoided as first line treatment as it has equal efficacy but can lead to drug resistance and adverse effects. However, it is the recommended first line treatment for patients with severe infections, for those who fail to respond to metronidazole, are intolerant of metronidazole, are pregnant or are younger than 10 years.³ Intravenous vancomycin is not given as it is not effective for *C.difficile* associated disease. Vancomycin enemas can be used if medication by oral route is not possible. As our patient had severe colitis, he was treated with vancomycin. Vancomycin was also given per-rectally in our patient because of the presence of ileus.

To conclude, CDI should be kept as a differential diagnosis in patients presenting with colonic symptoms even in the absence of diarrhea, especially in the presence of underlying risk factors.

REFERENCES

1. Fitzpatrick F, Barbut F. Breaking the cycle of recurrent *Clostridium difficile* infections. Clin Microbiol Infect 2012;18(6):2-4.
2. Bouza E. Consequences of *Clostridium difficile* infection: understanding the healthcare burden. Clin Microbiol Infect 2012;18(6):5-12.
3. Kelly CP, Lamont JT. Antibiotic associated diarrhea, Pseudomembranous enterocolitis, and *Clostridium difficile*-associated diarrhea and colitis. In: Feldman M, Friedman LS, Brandt LJ, editors. Sleisenger and Fordtran's Gastrointestinal and Liver Disease. 9th edition. Philadelphia: Elsevier; 2010. p. 1889-904.
4. Brandt LJ, Kosche KA, Greenwald DA, Berkman D. *Clostridium difficile*-associated diarrhea in the elderly. Am J Gastroenterol 1999;94(11):3263-6.
5. Triadafilopoulos G, Hallstone AE. Acute abdomen as the first presentation of pseudomembranous colitis. Gastroenterology 1991;101(3):685-91.