

Case Report

Unexpected Clostridium Difficile Infection after Closure of Colostomy: A Case Report

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Key Words

Clostridium difficile;
Closure of colostomy

Closure of colostomy is not considered a complicated procedure, however toxic colitis sourced by Clostridium difficile sometimes cause significant morbidity and mortality. Epidemiological data of Clostridium difficile infections (CDIs) are limited; nevertheless, long-term use of antibiotics is believed to be the leading cause. Here we presented a case of toxic colitis which was complicated with intestinal obstruction and unstable hemodynamic condition due to CDI after closure of colostomy. He was recovered after emergent laparotomy with adequate treatment.

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The construction of a temporary colostomy is performed in patients who need fecal stream diversion in colorectal and anal surgery. Closure of colostomy is completed after the disappearance of diversion reason. Surgical morbidities including a wide range of minor wound infections to severe sepsis are seen. The symptoms of toxic colitis with intestinal obstruction and sepsis due to CDIs are not frequently expected after colostomy closure. An unusual case of CDI after colostomy closure was encountered and we therefore described it here as a case report.

Case Report

A 50 year-old man had suffered from anorectal laceration with left buttock and presacral extension after traffic accident. He was sent to our emergent department and operated immediately with debridement, repair of laceration, and loop transverse colostomy. He underwent another debridement due to poor healing of anal wound about 2 months later. After another 2 months of follow up, closure of colostomy was per-

formed because his anal wound was well healed. The colostomy was closed with smooth recovery course. He was discharged one week after operation. However, he suffered from abdominal cramping pain with fever two days after discharge and went to emergent department for treatment. The physical examination showed distended abdomen without muscle guarding. The abdominal film revealed severe right colon dilation with much stool but no free air (Fig. 1). The blood tests revealed an elevated white blood cell counts. He was then hospitalized and treated with intravenous fluid replacement and antibiotics under the impression of intestinal obstruction with bacterial translocation.

Contrast-enhanced computed tomography (CT) of the abdomen was arranged 2 days later due to the persisted symptoms without improvement. The results revealed postoperative transverse colon stricture at operated site with intestinal obstruction and severe dilated right side colon (Fig. 2A-D). Emergent operation was explained and performed due to hemodynamic instability. The operative findings showed little dirty ascites and severe right colon dilation with serosa tear proximal to anastomotic site (Fig. 3) and diffuse yel-

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Fig. 1. Severe right colon dilation with much stool but no free air.

lowish plaques over colon mucosa (Fig. 4). The transverse colon distal to anastomotic site was noted dilated but scattered yellowish plaques were still seen. The operation procedure was therefore decided to be right hemicolectomy with ileostomy and distal transverse colon mucous fistula. CDI was highly suspicious as well. The antibiotic treatment included intravenous metronidazole 500 mg four times a day and enema vancomycin 500 mg four times a day immediately after operation. The clinical suspicion of CDI was confirmed later with positive stool study for CDI and colonoscopy (Fig. 5). The patient was fully recovered after treatment and discharge 3 weeks after operation.

He received regular follow-up visits and no relapse of CDI was found. The transverse colostomy was taken down five months later without any sequel.

Discussion

Clostridium difficile is an anaerobic, gram-positive rod bacterium that may be a normal inhabitant of the human colon, or can be transmitted exogenously via

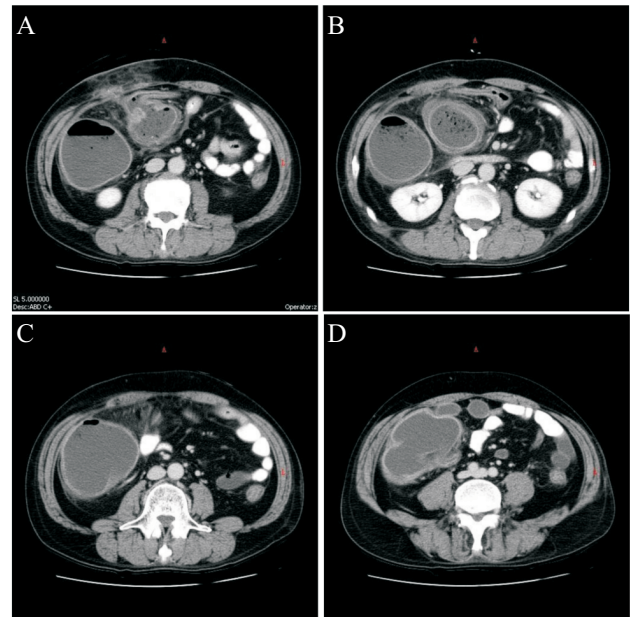


Fig. 2. (A-D) Transverse colon stricture at operated site with intestinal obstruction and severe dilated right-sided colon.



Fig. 3. Severe right-sided colon dilation with serosa tear.

ingestion.² CDIs are most commonly involved in colon, which result in a wide range of presentations from an asymptomatic carrier status to a variety of severely life-threatening conditions.³ Gastrointestinal symptoms from CDI result from bacterial toxins that cause inflammation of and fluid secretion from the colonic mucosa.⁴ Severe infection can present as watery diarrhea with dehydration, toxic colitis, and sepsis that requires critical care and prompt surgical consultation.⁵ Symptoms typically manifest 2 to 3 days following institution of antibiotic therapy for another disease process, but can be delayed for up to 2 to 3 months after



Fig. 4. Gross specimen with diffuse yellowish plaques over colon mucosa.

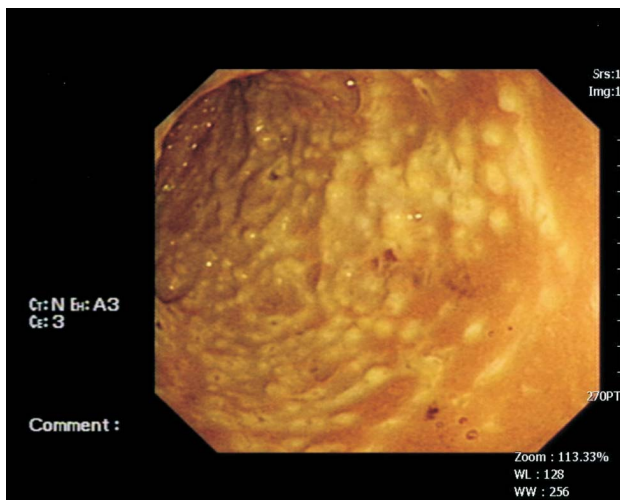


Fig. 5. Colonoscopic picture of left-sided colon presenting clostridium difficile infection.

discontinuation of antimicrobial therapy.²

The creation of a temporary colostomy is a common procedure to divert the fecal stream and to reduce postoperative complication in the management of colon, rectum, and anal surgery. Closure of colostomy can be associated with significant complications with an incidence rate ranging from 10% to 49% and a mortality rate as high as 4.5%.¹ Intestinal obstruction was reported with incidence of around 4% (1% to 6%).¹ CDIs were rarely seen in patients with colostomy closure. In our case, he had undergone repeated anal wound management with antibiotic treatment 4 months ago. CDI was not found during closure of colostomy and not seen in pathology report either. The disease progressed 2 days after discharge with prophylactic sec-

ond-generation cephalosporin use for one day postoperatively. The major risk factor for CDI is recent antibiotic use with 1 report finding that 96% of symptomatic patients received antibiotics within 14 days of infection, and all affected patients were exposed to antibiotics within 3 months.⁶

CDI was not readily diagnosed before the operation because of the signs of bowel obstruction and hemodynamic instability. The diagnosis was nearly confirmed after the colon resection and the findings inside the lumen.

Because of the major indication of operative intervention in Clostridium difficile colitis is severe colitis with complicated sepsis, the conventional surgical intervention had typically been a total abdominal colectomy with an end ileostomy and a stapled rectal stump.⁷ Details regarding the rationale for the decision to perform a segmental colectomy are limited, although a normal-appearing colon on gross examination intraoperatively is typically described. For those undergoing partial resection, reoperation to resect further bowel (16%) was required.⁸ This operation was usually performed in known CDI with medical failure. In our case, the diagnosis was confirmed during operation and the left-sided colon was not dilated with normal colon appearance. The ileostomy with distal transverse colon mucosa fistula after bowel resection and the possibility of later operation for left-sided colon were explained and discussed with family.

The treatment of diagnosed CDI is to discontinue the current use of antibiotic agents and to start the right antibiotic regimens including metronidazole (200-500 mg orally 4 times a day or 500-750 mg orally 3 times a day) and vancomycin (125-500 mg 4 times a day).^{9,10} The recommended duration of medical treatment for CDI is 10 to 14 days.^{9,10} Since the patient had ileostomy, oral provision of antibiotic agents could not reach the distal colon. After reviewing the literatures, vancomycin enemas are found an adjunctive treatment with success rate up to 89%.^{11,12} The patient had recovered after the combination therapy of both intravenous and enema antibiotic agents.

In conclusion, we need to consider probable CDIs for patients with known history of antibiotics use, especially in long-term use, when performing gastroin-

testinal surgery. The early detection with adequate antibiotic treatment may prevent progression to severe complications.

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病例報告

關閉人工造口後困難梭孢桿菌感染之病例報告

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關閉人工造口手術是常施行之大腸直腸手術之一。偶而有輕微傷口感染併發症。

在此提出一病例，在關閉人工造口後，產生嚴重困難梭孢桿菌感染併發敗血症。經手術及適當抗生素治療後，順利出院之病例報告。

關鍵詞 困難梭孢桿菌、關閉人工肛門。