

CLINICAL IMAGE

Nonocclusive mesenteric ischemia: fulminant pancolitis

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Key Clinical Message

NOMI is mesenteric hypoperfusion with reactive vascular spasms. Changes in the color of the mucosa may reflect the severity of the ischemia of the colon and the severity of prognosis. Even with surgery, the mortality rate is 75%. Diagnosis requires a high degree of clinical suspicion.

Keywords

Acute mesenteric ischemia, colonoscopy, computed tomography angiography, fulminant pancolitis, nonocclusive mesenteric ischemia.

Question: A 79-year-old woman was admitted to our hospital for a screening colonoscopy. In the early morning, 6 h after taking the laxatives, she presented with generalized abdominal pain associated with abdominal distension, vomiting, and bloody loose stool, and she later developed hypotension. Upon physical examination, there was slight abdominal wall rigidity, but no guarding or rebound tenderness. Laboratory findings revealed leukocytosis of 16,900/mm³; aspartate aminotransferase (AST), 1950 U/L; amylase, 181 U/L; alkaline phosphates (ALP), 791 U/L; lactate dehydrogenase (LDH), 1790 IU/L; creatine phosphokinase (CPK), 3300 IU/L; and c-reactive protein (CRP), 22.1 mg/mL. The presepsin was 748 pg/mL (normal value, <314 pg/mL). A plain X-ray of the abdomen revealed air-filled and dilated colon loops without thickening of the bowel wall (Fig. 1A). Axial contrast-enhanced CT study showed small bowel demonstrating increased and prolonged bowel wall enhancement, and there was an absence of contrast enhancement in the colon loops (Fig. 1B). Colonoscopy revealed a focal area of pale and edematous mucosa interspersed with petechial

hemorrhage and superficial ulceration of the recto-sigmoid colon (Fig. 1C). Narrowing or obstruction of the celiac trunk, superior mesenteric artery, or inferior mesenteric artery were not observed (Fig. 1D).

What is the Diagnosis?

Answer: Nonocclusive mesenteric ischemia (NOMI), fulminant pancolitis.

Colonoscopy revealed a gray-green (Fig. 2A,B) to black mucosa (Fig. 2C) on the transverse colon and descending colon. A reformat CT image showed a reduced number of vessels in the mesentery of the bowel loops (Fig. 1D). Multiple biopsies showed mucosal necrosis, mucosal and submucosal hemorrhage, congestion of the submucosa, inflammatory infiltration in the lamina propria, intravascular thrombi and necrosis (Fig. 2D). Ischemic tissue damage to the small intestine and colon is thought to be due to both local hypoperfusion during the ischemic period and reperfusion injury when blood flow returns [1]. Pneumatosis intestinalis and gas in the mesenteric vessels

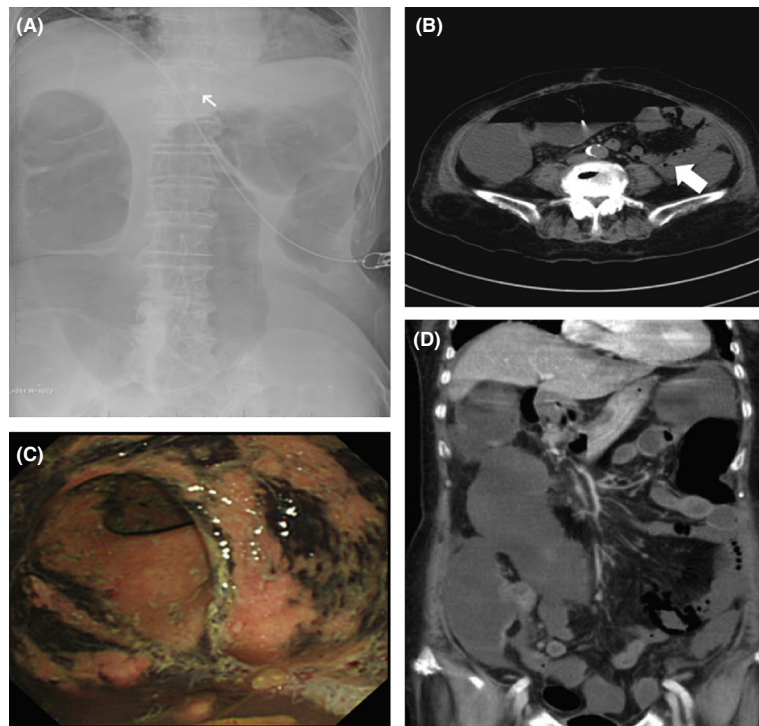


Figure 1. (A) A plain abdominal X-ray showed air-filled and dilated colon loops as the sign of paralytic ileus. (B) Abdominal noncontrast computed tomography (CT) scan showed intestinal segments dilated and distended by air-fluid levels, resulting in paralytic ileus and diffusely involving small bowel loops with pneumatosis intestinalis (arrow). (C) The colonoscopic examination revealed a focal area of pale and edematous mucosa interspersed with petechial hemorrhage and superficial ulceration on the recto-sigmoid colon. (D) A reformat CT image showed a reduced number of vessels in the mesentery of the bowel loops.

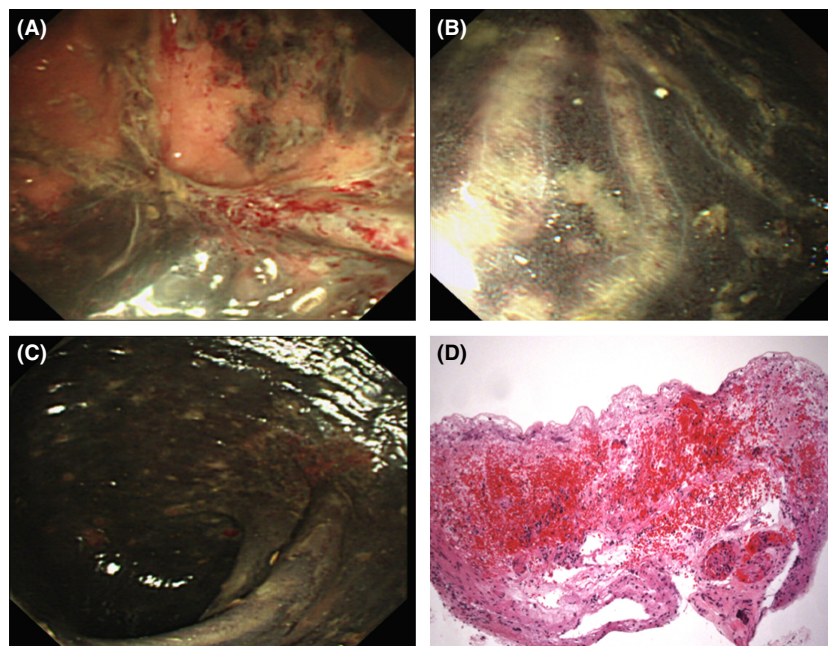


Figure 2. (A, B, C) The colonoscopic examination revealed an edematous mucosa interspersed with petechial hemorrhage and superficial ulceration on the recto-sigmoid colon and a gray-green to black mucosa on the transverse colon and descending colon. (D) Multiple biopsies showed mucosal necrosis, submucosal hemorrhage, congestion of the submucosa, and inflammatory infiltration in the lamina propria ($\times 100$).

are ominous signs when associated with bowel wall thickening and are due to bowel infarction. In the early stages of ischemia of the bowel, pale and edematous mucosa interspersed with petechial hemorrhage and superficial ulceration are observed at colonoscopy. In the middle stages, segmental erythema, ulceration and bleeding are observed. In severe ischemic cases, the mucosa appears green, gray, or black over significantly damaged areas of the bowel. The necrosis manifests as a black bowel wall at colonoscopy, indicating that an operation is necessary. Fulminant pancolitis of the type encountered in our case is rare, occurring in only 1% of cases [2].

Consent

Written informed consent was obtained from the patient's relatives for publication of this case report and any

accompanying images. Copies of the written consent are available for review by the Editor-in-Chief of this journal.

Conflict of Interest

The authors declare that they have no competing interests.

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