Case of Bleeding Ileal Varices after a Colectomy Diagnosed by Capsule Endoscopy

Chang Joon Park, Bong Eun Lee, Hye Kyung Jeon, Gwang Ha Kim, Geun Am Song, Sang Hwa Ko, So Jeong Lee and Do Youn Park

Departments of Internal Medicine, Surgery and Pathology, Pusan National University School of Medicine, Busan, Korea

We report a case of bleeding ileal varices associated with intra-abdominal adhesions after colectomy which was successfully diagnosed using capsule endoscopy. A 77-year-old woman visited the emergency department for several episodes of melena. She had a medical history of neoadjuvant chemo-radiation therapy and subsequent surgery for rectal cancer 6 years previously. Conventional diagnostic examinations including upper endoscopy, colonoscopy, and abdominal computed tomography could not detect any bleeding focus, however, following capsule endoscopy revealed venous dilatations with some fresh blood in the distal ileum, indicating bleeding ileal varices. The patient underwent exploratory laparotomy and the affected ileum was successfully resected. No further gastrointestinal bleeding occurred during the 6 months follow-up. Small intestinal varices are important differential for obscure gastrointestinal bleeding especially in patients with a history of abdominal surgery in the absence of liver cirrhosis, and capsule endoscopy can be a good option for diagnosing small intestinal varices. (Korean J Gastroenterol 2018;71:349-353)

Key Words: Gastrointestinal hemorrhage; Capsule endoscopy

INTRODUCTION

The term “ectopic varices” is defined as large portosystemic venous collateral structures occurring anywhere in the abdominal cavity, except in the gastroesophageal region. Small intestinal varices, usually associated with portal hypertension secondary to liver cirrhosis or previous abdominal surgery, are an uncommon cause of obscure gastrointestinal bleeding (OGIB). Anatomically, these lesions are difficult to detect by conventional upper endoscopy and colonoscopy, and a diagnosis is even more difficult when physicians do not consider the existence of small intestinal varices in a differential diagnosis of OGIB. On the other hand, bleeding from small intestinal varices can be massive and life-threatening; therefore, early identification and taking appropriate action are critical. Recently, advances in diagnostic methods, such as capsule endoscopy, deep enteroscopy, and radiographic imaging have made it possible to detect OGIB more effectively. In particular, capsule endoscopy is a useful noninvasive procedure for detecting small intestinal
bleeding.

This paper reports a case of bleeding ileal varices associated with intra-abdominal adhesions after a colectomy, which was diagnosed successfully using capsule endoscopy.

**CASE REPORT**

A 77-year-old woman visited the emergency department due to several episodes of melena and abdominal pain. She had a medical history of neoadjuvant chemo-radiation therapy and a subsequent low anterior resection for rectal cancer 6 years previously. Upon admission, her blood pressure was 90/60 mmHg and pulse rate was 85/min. The initial hemoglobin level in the emergency department was 9.9 g/dL, indicating an abrupt decline compared to the level of hemoglobin (12.5 g/dL) measured at the general surgery department 2 weeks earlier. The other initial laboratory tests revealed the following: white blood count, 8,080/μL; platelet count, 97,000/μL; prothrombin time, 12.0 sec (international normalized ratio: 1.04); blood urea nitrogen, 26.4 mg/dL; creatinine, 0.60 mg/dL; serum albumin, 3.3 g/dL; total bilirubin, 2.35 mg/dL; direct bilirubin, 0.69 mg/dL; serum aspartate aminotransaminase 34 IU/L; serum alanine aminotransaminase 35 IU/L. The serological markers for previous or current hepatitis B and C infections were negative, and there was no prior history of alcohol abuse. Conventional diagnostic examinations, including upper endoscopy, colonoscopy, and abdominal computed tomography (CT), were performed to evaluate the bleeding focus. Upper endoscopy showed no evidence of bleeding. The colonoscopy revealed dark blood retention in the entire colon, originating from the oral side of the ileocecal valve (Fig. 1). Abdominal CT angiography did not show any obvious bleeding. On the other hand, the patient presented with recurrent massive melena, and

![Fig. 1](image1.png)  
**Fig. 1.** Colonoscopy showed dark blood retention in the entire colon, originating from oral side of the ileocecal valve. (A) Transverse colon. (B) Ileocecal valve. (C) Terminal ileum.

![Fig. 2](image2.png)  
**Fig. 2.** Capsule endoscopy showed bluish venous dilation with bloody intestinal fluids in the distal ileum.
her anemia worsened despite conservative treatment with blood transfusions. Subsequent angiography for the superior mesenteric artery was performed but no bleeding focus could be found. The patient then underwent capsule endoscopy. The results showed no evidence of active bleeding or retained blood in the duodenum, jejunum, and proximal ileum; however, bluish distended vascular lesions along with newly emerged bloody intestinal fluids were detected in the distal ileum, suggestive of bleeding ileal varices (Fig. 2). Therefore, the previous abdominal CT images were reviewed again, which revealed ileal varices adjacent to the uterus associated with a previous colectomy but no evidence of radiologic liver cirrhosis (Fig. 3). An exploratory laparotomy was performed, which revealed a small intestine adhered to the uterus with calcification and variceal changes. Adhesiolysis of the small intestine from the pelvic cavity and subsequent resection of the affected ileum were performed. The resected ileum had a tortuous, engorged vascular structure on the serosal and

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**Fig. 3.** Abdominal computed tomography revealed venous dilatation on the ileum (red arrows) adjacent to the uterus.

**Fig. 4.** Histopathology findings. (A, B) Gross findings of the resected ileum showed a well-defined tortuous, engorged vascular structure (red arrows) on the serosal (A) and mucosal (B) surface. (C, D) On a microscopic examination, submucosa (C, H&E, ×40) and subserosa (D, H&E, ×40) showed irregularly dilated venous structures (red arrows). (E) Fibrous bands (star) around the dilated tortuous varices were observed on the subserosa (H&E, ×40).
mucosal surface (Fig. 4A, B). A microscopic examination revealed irregularly dilated vascular proliferation from the submucosa to subserosa and subserosal fibrous bands (Fig. 4C-E). No further melena was observed after surgery and the patient was discharged home on the 17th postoperative day. At the 6-month follow-up, the patient was stable with no further complications.

**DISCUSSION**

The authors encountered a patient with recurrent massive gastrointestinal (GI) bleeding from the ileal varices caused by previous abdominal surgery without liver cirrhosis. The initial upper endoscopy and colonoscopy did not reveal the bleeding focus, but the colonoscopy findings were indicative of small intestinal bleeding. Abdominal CT was performed according to the protocol for the detection of GI arterial bleeding, and a subsequent CT reading was focused on arterial bleeding, which led to the missed ileal varices as a bleeding cause. Owing to the continued massive bleeding, angiography of superior mesenteric artery was performed as a next step but it failed to find any bleeding lesions. Indeed, small intestinal varices were not included in the differential diagnosis of OGIB because there was no evidence of liver cirrhosis, which is usually considered a cause of varices. Hence, the diagnosis of bleeding ileal varices was delayed until the patient underwent capsule endoscopy.

OGIB is defined as persistent or recurrent bleeding from the GI tract after negative primary upper and lower endoscopies, and represents approximately 5% of those patients with all GI bleeding. With the introduction of capsule endoscopy and deep enteroscopy, the majority of patients with OGIB were found to have sources of bleeding located in the small intestine. Small intestinal bleeding can result from various conditions, such as vascular, inflammatory, iatrogenic, tumorous, or diverticular disorders. A detailed medical history, including comorbidities, prior history of cancer, radiation therapy or abdominal surgery, or any prescriptions, such as aspirin or non-steroidal anti-inflammatory drugs, needs to be taken when small intestinal diseases are suspected. Although ectopic varices are rare causes of small intestinal bleeding, they can cause massive GI bleeding with a high risk of rupture. Small intestinal varices distal to the duodenum, usually present with sudden, profuse melena or hema-tochezia, or intraperitoneal bleeding, and they are also found in patients with chronic anemia or as a positive result for stool occult blood. Therefore, it is important to suspect the existence of small intestinal varices as a source of OGIB if a patient has the predisposing risk factors for ectopic varices. Most commonly, ectopic varices are caused by portal hypertension in the context of pre-existing liver cirrhosis or portal vein thrombosis. A study of 37 patients with liver cirrhosis who underwent capsule endoscopy revealed 8.1% to have small intestinal varices. Other etiologies independent of portal hypertension include familial varices, intra-abdominal adhesions from previous surgery, arteriovenous fistula secondary to trauma, mesenteric vein thrombosis, and lymphoid hyperplasia. The formation of ileal varices is often the result of collateral circulation through postoperative adhesions between the ileum and abdominal wall or other organs. A triad of portal hypertension, hema-tochezia without hematemesis, and prior abdominal surgery characterize the hemorrhage from small intestinal varices. On the other hand, bleeding ectopic varices, particularly ileal varices, cannot be diagnosed easily at an early stage. Because of their rarity, these lesions are often not included in a differential diagnosis for OGIB, regardless of whether there is portal hypertension or not. The clinical suspicion for small intestinal varices is critical for diagnosis, and developing techniques, such as capsule endoscopy and deep enteroscopy, may identify these lesions successfully. According to the guidelines of small intestinal bleeding, capsule endoscopy should be considered as a first-line procedure for small intestinal evaluation if there is no obvious bleeding focus on the second-look examinations, such as upper endoscopy and colonoscopy. In the present case, capsule endoscopy successfully diagnosed the bleeding ileal varices. Thus, capsule endoscopy is a good option for diagnosing small intestinal varices non-invasively.

The treatment for bleeding ectopic varices has not been established clearly. Because of the infrequency of these lesions, only a few case reports and small case series exist. Therefore, the management of bleeding ectopic varices depends on the etiology and patient’s status, and may require a multidisciplinary team of gastroentero-hepatologists, surgeons, and interventional radiologists. In most cases reported previously, surgery, such as a segmental resection or a shunt operation, has been the preferred treatment, and ap-
pears to successfully control the bleeding of small intestinal varices. On the other hand, not all patients can undergo surgery because of their poor medical condition. For such patients, percutaneous treatment with interventional radiologic techniques can be considered because it is less invasive. Recently, with the advancements in technology, interventional radiologic techniques (e.g., balloon-occluded retrograde transvenous obliteration, transjugular intrahepatic portosystemic shunt, and percutaneous transhepatic sclerotherapy) and endoscopic techniques (e.g., injection of a sclerosant solution via deep enteroscopy) have been used to treat ileal variceal bleeding. In the present case, the patient was managed successfully with surgical treatment including adhesiolysis and resection of the affected ileum.

In conclusion, small intestinal varices are important in a differential diagnosis for OGIB, particularly in patients with a history of abdominal surgery. Moreover, capsule endoscopy can be a good option for diagnosing small intestinal varices. Although surgical resection is an essential treatment for small intestinal varices associated with intra-abdominal adhesions after previous surgery, radiologic interventions can be considered as an alternative option for patients in a poor medical condition.

REFERENCES