

## Successful Endoscopic Hemostasis for Bleeding from an Acquired Ileal Diverticulum

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## Case Report

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### Successful Endoscopic Hemostasis for Bleeding from an Acquired Ileal Diverticulum

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**Abstract** We herein report successful endoscopic hemostasis in a patient with a bleeding from acquired ileal diverticulum. A 65-year-old woman was introduced to our hospital after the sudden onset of painless hematochezia. When emergency colonoscopy was performed, the site of bleeding could not be identified because of extensive blood pooling in the colon and ileocecal region. After admission, repeat colonoscopy with a transparent hood device after bowel preparation disclosed oozing of blood from an ileal diverticulum approximately 15 cm proximal to the ileocecal junction. We performed endoscopic therapy with injection of a hypertonic saline-epinephrine solution and placement of additional hemoclips in the diverticulum. Since the latter treatment, the patient had no recurrent hematochezia, and occult blood tests in stool had been negative. In cases of lower gastrointestinal bleeding, bleeding from an acquired ileal diverticulum should be considered and the terminal ileum carefully observed.

**Key words** : endoscopic hemostasis, acquired ileal diverticulum

#### Introduction

Endoscopy has markedly improved the detection and treatment of lower gastrointestinal bleeding with reported detection rates of 69% to 80%<sup>1</sup>. However, cases having an unknown bleeding source remain. Acquired ileal diverticulum is an uncommon condition most likely to occur in the terminal ileum<sup>2</sup>. Bleeding from an ileal diverticulum can be attributed to local vascular anatomy, with large mesenteric vessels penetrating the intestinal wall<sup>3</sup>. Bleeding from acquired ileal diverticulum has been reported as difficult to detect, requiring selective visceral angiography or surgical resection<sup>2,4</sup>. Reports of

successful endoscopic treatment of bleeding from acquired ileal diverticulum are few. We report successful endoscopic hemostasis in a patient with a bleeding from acquired ileal diverticulum.

#### Case Report

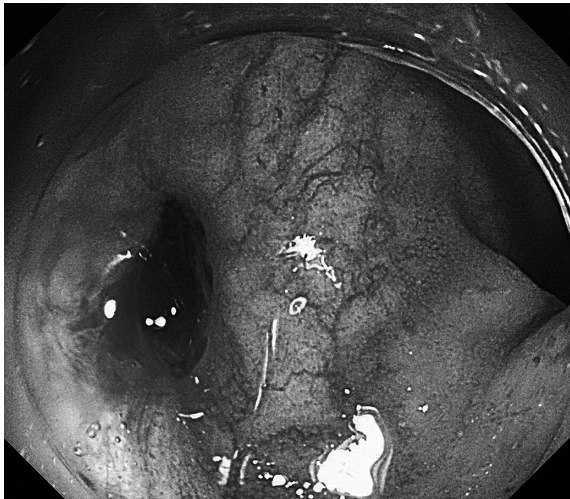
A 65-year-old woman with a personal history of hypertension and hyperlipidemia was admitted after the sudden onset of painless hematochezia. She had sinus tachycardia with hemoglobin of 70 g/L (7g/dL). When emergency colonoscopy was performed, the site of bleeding could not be identified because of extensive blood pooling in the colon and ileocecal region. Although esophagogastroduodenoscopy was performed, there were no significant findings in the esophagus, stomach, or duodenum. After admission, repeat colonoscopy with a transparent hood device after bowel preparation disclosed blood clots approx-

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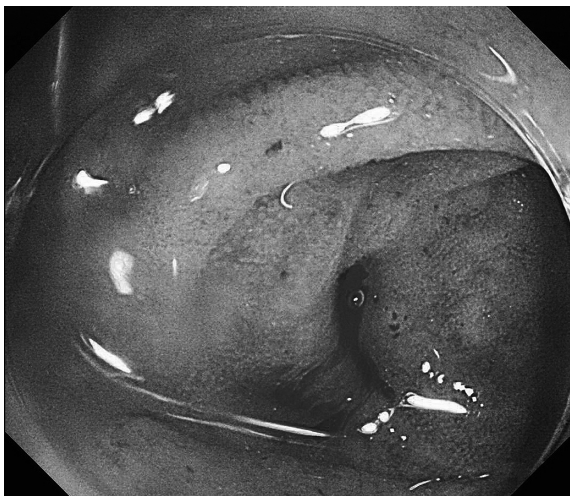
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imately 15 cm proximal to the ileocecal junction (Fig. 1a). After suctioning the clot, colonoscopy revealed that the origin of bleeding was in an ileal diverticulum (Fig. 1b). We performed endoscopic therapy with injection of a hypertonic saline-epinephrine solution and placement of additional hemoclips in the diverticulum (Fig. 2). Since this treatment, the patient has had no recurrent hematochezia and occult blood tests in stool have been negative. There have been no further episodes of bleeding in the subsequent 4 months.

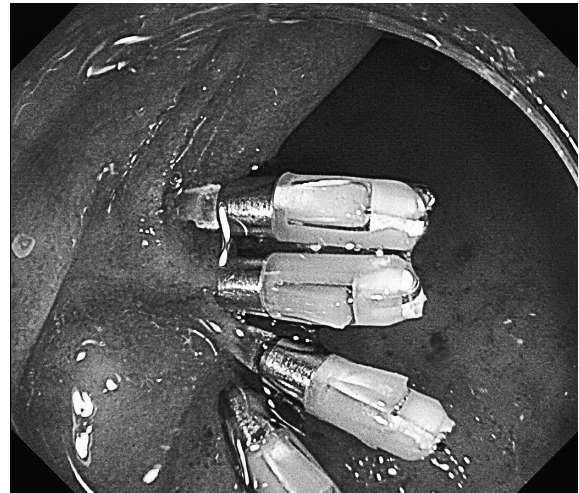
### Discussion



**Fig. 1a** Endoscopic view showing blood clots approximately 15 cm proximal to the ileocecal junction.



**Fig. 1b** Endoscopic view showing origin of bleeding in an ileal diverticulum.



**Fig. 2** Endoscopic hemostasis was achieved using hypertonic saline-epinephrine injection and hemoclips.

Acquired diverticula of the small bowel are extremely rare<sup>2)</sup>. Jejunioleal diverticula, generally accepted as acquired, are uncommon, with their incidence reported to range from 0.5% to 2.3% in small-bowel contrast studies and from 0.3% to 4.5% in autopsy studies in western countries<sup>5)6)</sup>. Acquired ileal diverticula make up approximately 10% to 20% of this number<sup>5)</sup>.

An acquired ileal diverticulum develops at the mesenteric border and is thought to arise because high intraluminal pressures result in herniation of the mucosa and submucosa through the muscle wall<sup>7)</sup>. Associated complications of acquired ileal diverticulum, such as perforation, obstruction, inflammation and bleeding were noted in less than 10% of patients; however, mortality rates related to these complications have been reported to range from 25% to 50%<sup>7)</sup>.

An acquired ileal diverticulum most likely occurs in the terminal ileum, but is easily hidden by the mesenteric fat, as the diverticulum exists between the two leaves of the mesentery<sup>4)</sup>. Therefore, diagnosis and treatment are often difficult when bleeding occurs from this source. In previous reports, technetium 99-labeled red cell scintigraphy or selective visceral angiography has been performed for detection of bleeding from acquired ileal diverticulum<sup>4)7)8)</sup>. Technetium 99-labeled red cell scintigraphy is less invasive

than selective visceral angiography, and is thought to be useful. However, this technique often achieves only a rough localization of the bleeding site, and the nature of the lesion cannot be evaluated<sup>8)</sup>. Selective visceral angiography seems to be useful for demonstrating and embolization of the source of bleeding. However, unless the blood loss is more than 0.5ml/min, angiography cannot precisely localize active bleeding<sup>9)</sup>. As well, as the effect of embolization is reported to be temporary and surgical resection is often required<sup>2)4)10)</sup>.

In this case, our patient has had no further episodes of bleeding since endoscopic hemostasis. Careful follow-up though seems to be necessary because it has been reported that there is a high possibility of recurrent bleeding from ileal diverticula<sup>4)10)</sup>. However, no reports have described an acquired ileal diverticulum successfully treated by endoscopic hemostasis. To the best of our knowledge, this is the first case report of successful endoscopic hemostasis for bleeding from an acquired ileal diverticulum.

Matsumoto et al.<sup>4)</sup> reported that an acquired ileal diverticulum should be considered in patients with obscure gastrointestinal bleeding. Here, we carefully observed the terminal ileum and could observe that there was oozing of blood from an ileal diverticulum. Furthermore, we obtained complete hemostasis endoscopically. In previous reports, bleeding from an acquired ileal diverticulum was difficult to detect and diagnose when bleeding occurred from this source<sup>2)4)</sup>. However, our result suggests that careful observation in the terminal ileum is important for the diagnosis of ileal diverticulum. A transparent hood device also seems to be especially useful for the detection of an acquired ileal diverticulum.

In conclusion, we reported the successful endoscopic hemostasis for bleeding from an

acquired ileal diverticulum. In cases of lower gastrointestinal bleeding, bleeding from an acquired ileal diverticulum should be considered and the terminal ileum carefully observed.

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(和文抄録)

## 内視鏡的に止血しえた回腸憩室出血の1例

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65歳の女性が、下血を主訴に当院に紹介された。同日、緊急下部消化管内視鏡検査を施行したが、全大腸及び回盲部に著明な凝血塊を認め、明らかな出血源は同定できなかった。当院入院後、腸管洗浄液による前処置を行い、再度下部消化管内視鏡検査を施行したところ、回腸末端から口側約15cmに凝血塊の付着を伴う憩室を認めた。吸引により漏出性の出血を認め、出血源と判断し、HSE (hypertonic saline-epinephrine) 局注法及びクリップによる内視鏡的止血術を施行した。施行後明らかな出血は認めなかった。下部消化管出血が疑われる場合、回腸憩室からの出血を念頭に置き、回腸末端を丹念に観察するべきであると考えられる。