

Meckel's diverticulum diagnosed by double-balloon enteroscopy

Ken Ohnita MD^{1,*}, Hajime Isomoto MD¹, Yohei Mizuta MD¹, Shiho Akazawa MD

¹, Yuko Akazawa MD¹, Kazuo Ohba MD¹, Masaya Yoshimura MD², Saburo

Shikuwa PhD¹, Katsuhisa Omagari MD¹, Fumihiko Fujita MD³, Kuniko Abe PhD⁴,

Shigeru Kohno PhD¹

¹Second Department of Internal Medicine, Nagasaki University School of Medicine,
Sakamoto 1-7-1, Nagasaki, Japan

²Nagasaki Yurino Hospital, Nagasaki, Japan

³Department of Transplantation and Digestive Surgery, Nagasaki University

Graduate School of Biomedical Sciences, Nagasaki, Japan

⁴Department of Pathology, Nagasaki University School of Medicine

*Correspondence to: Ken Ohnita, Second Department of Internal Medicine, Nagasaki

University School of Medicine, 1-7-1 Sakamoto, Nagasaki 852-8501, Japan

Tel: +81-95-849-7567, Fax: +81-95-849-7568

E-mail: k-ohnita@net.nagasaki-u.ac.jp

A 17-year-old man presented with a 5-days' history of melena. His past and family histories were noncontributory. On admission, physical examination revealed pallor and severe hypotension (84/42 mmHg), but no abdominal signs. Hematologic analysis on admission showed a red blood cell count of $101 \times 10^4 / \text{mm}^3$, hemoglobin of 2.9 g/dl and hematocrit of 9.2%. Upper GI endoscopy demonstrated no bleeding. Colonoscopy revealed blood clots but no source of bleeding. Angiography, radiolabeled red cell scintigraphy, and technetium 99m pertechnetate scintigraphy also failed to detect the source of bleeding. Thirteen days after admission, retrograde double-balloon enteroscopy revealed a large diverticulum in the distal part of the ileum and a small ulcer was identified within the diverticulum (Fig.1A, B). Barium contrast radiography of the small intestine also revealed the ileal diverticulum, measuring 10 cm (Fig.2). A presumptive diagnosis of Meckel's diverticulum was made, and the patient accordingly underwent laparoscopy. A Meckel's diverticulum measuring 10 cm in diameter was found approximately 70 cm proximal to the ileocecal junction (Fig. 3), and this was resected laparoscopically. Macroscopically, an ulcer scar was identified in the diverticulum (Fig. 4). Histological examination showed ectopic gastric mucosa surrounding the ulcer scar (Fig 5). The postoperative course was uneventful and the patient remains in complete remission six months after resection.

Meckel's diverticulum is the most common congenital anomaly of the gastrointestinal (GI) tract, with an autopsy incidence of 0.3% to 4% [1, 2]. The diverticulum is usually situated 40-130 cm from the ileocecal junction and is therefore difficult to detect endoscopically before surgery [3]. However, double-balloon enteroscopy, developed by Yamamoto *et al.*, enables examination of the entire small intestine [4]. Using this procedure, we could visualize Meckel's diverticulum of the ileum. To our knowledge, this is the third report of the Meckel's diverticulum preoperatively diagnosed by double-balloon enteroscopy.

References

- [1] Aubrey DA. Meckel's diverticulum: a review of the sixty-six emergency Meckel's diverticulectomies. *Arch Surg* 1970; 100: 144-6
- [2] Jay GD, Margulis RR, McGraw AR, *et al.* Meckel's diverticulum; a survey of 109 cases. *Arch Surg* 1950; 6: 158-69
- [3] Weinstein EC, Cain JC, ReMine WH. Meckel's diverticulum 55 years of clinical and surgical experience. *JAMA* 1962; 182: 131-3
- [4] Yamamoto H, Sekine Y, Sato Y, *et al.* Total enteroscopy with a nonsurgical steerable double-balloon method. *Gastrointest Endosc* 2001; 53: 216-20

Figure legend

Figure 1A.

Double-balloon enteroscopic view of Meckel's diverticulum at the inferior part of ileum (arrow).

Figure 1B.

In the diverticulum, enteroscopic view showing small ulcer and stenosis.

Figure 2.

Barium contrast radiography of the small intestine showing diverticulum with a size of about 10 cm in the ileum (arrow).

Figure 3.

In laparoscopy, a Meckel's diverticulum measuring 10cm was found approximately 70cm proximal to the ileocecal junction.

Figure 4.

Macroscopically, ulcer scar was existed in the diverticulum.

Figure 5.

Histological examination showed ectopic gastric mucosa near the ulcer scar in the diverticulum.

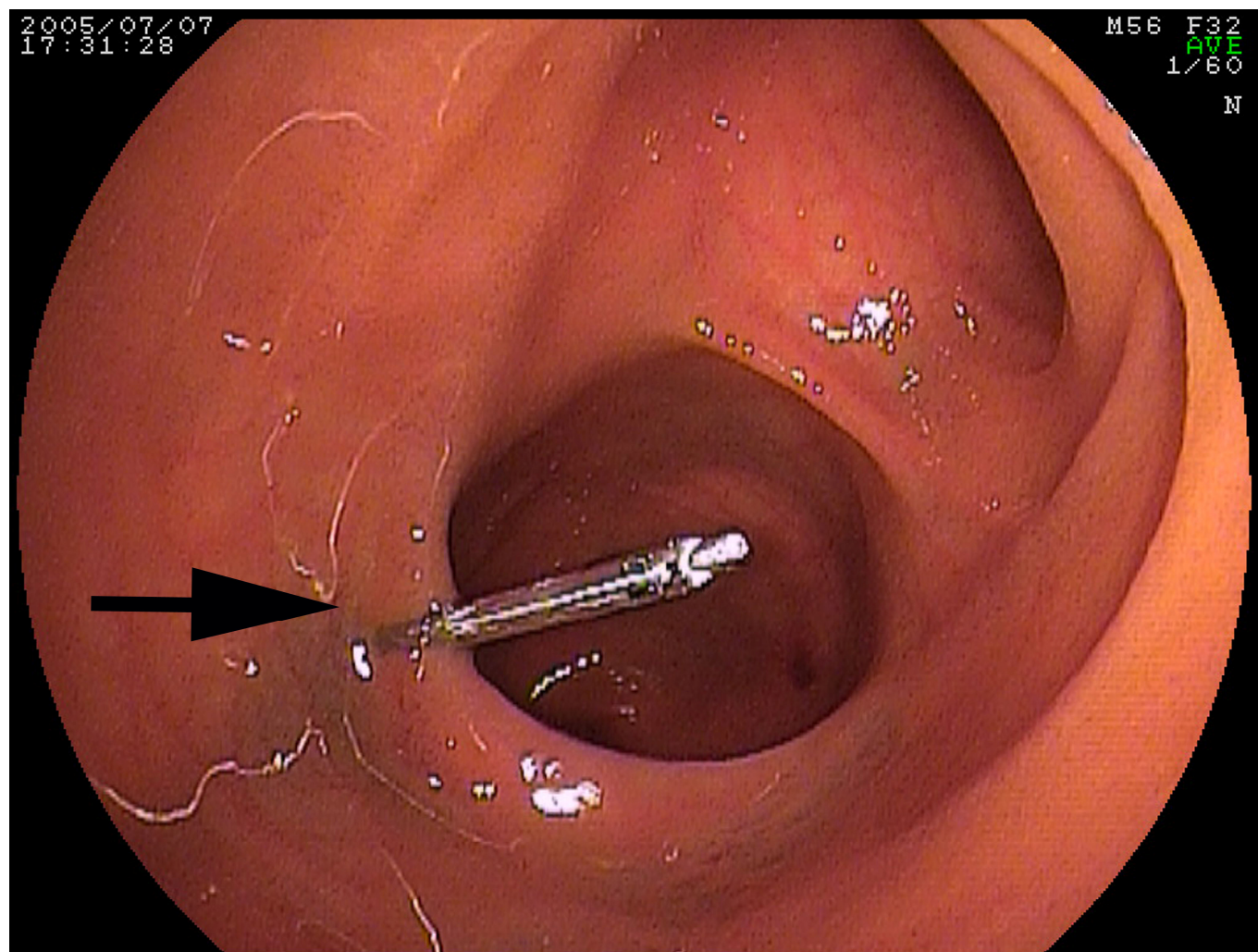


Figure 1A

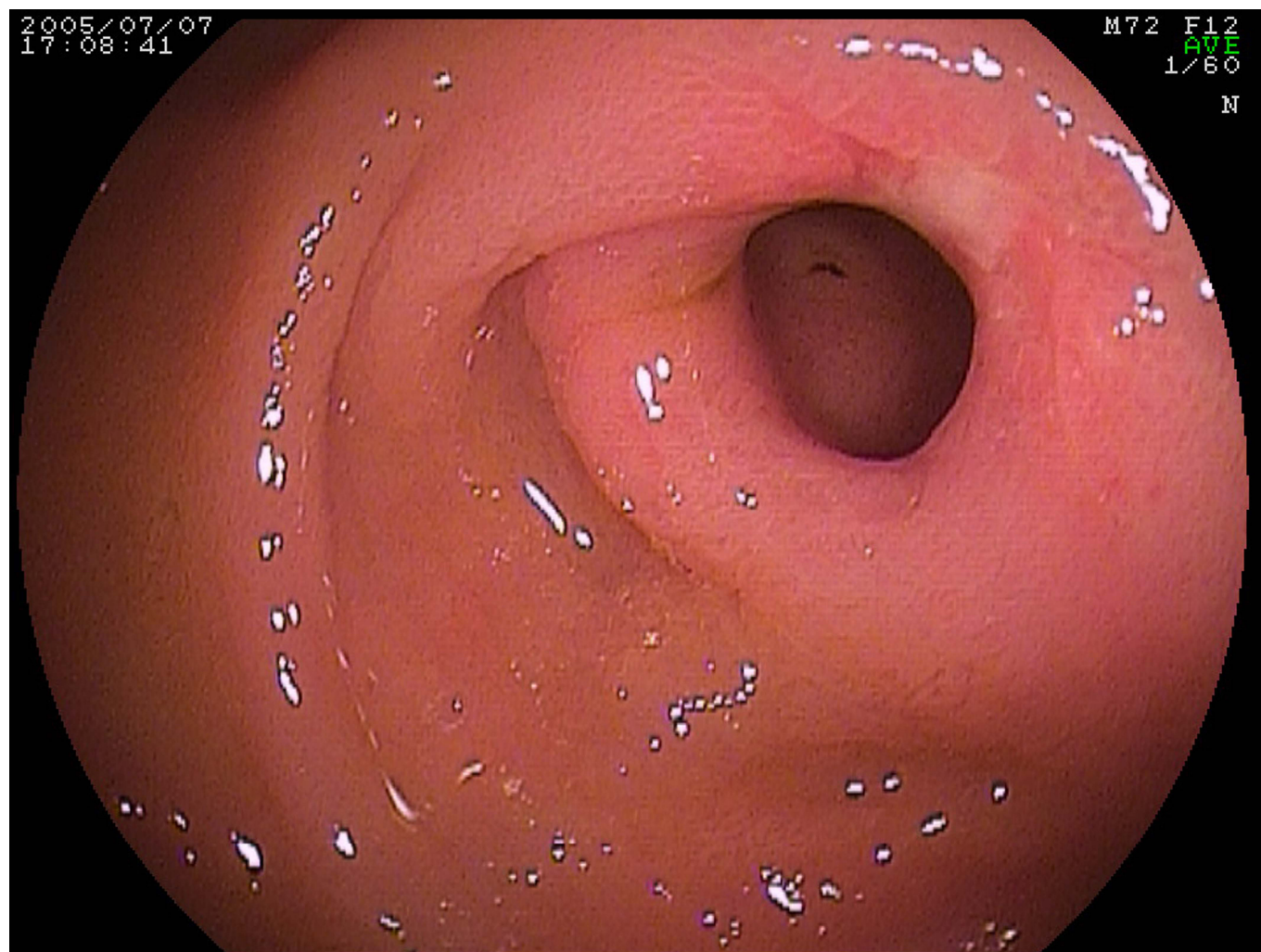


Figure 1B

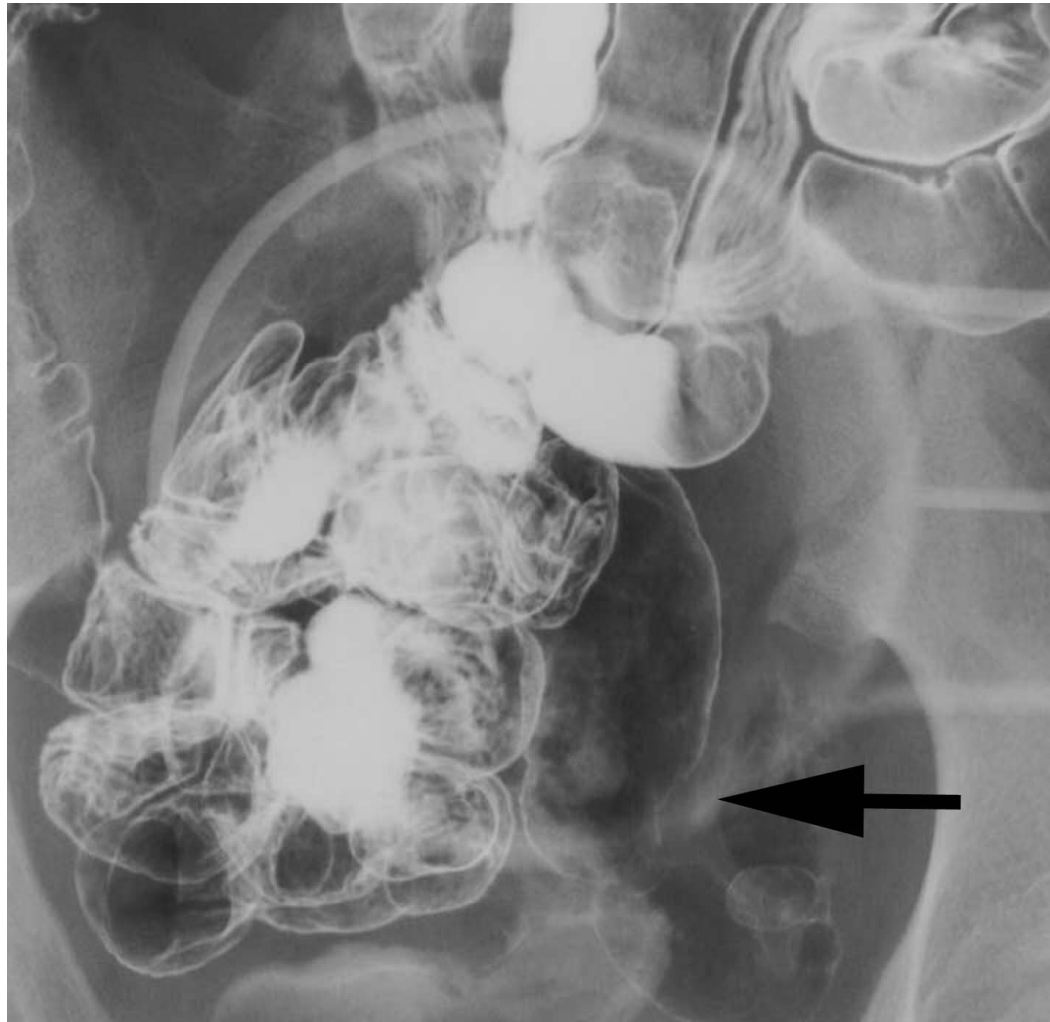


Figure 2



Figure 3



Figure 4

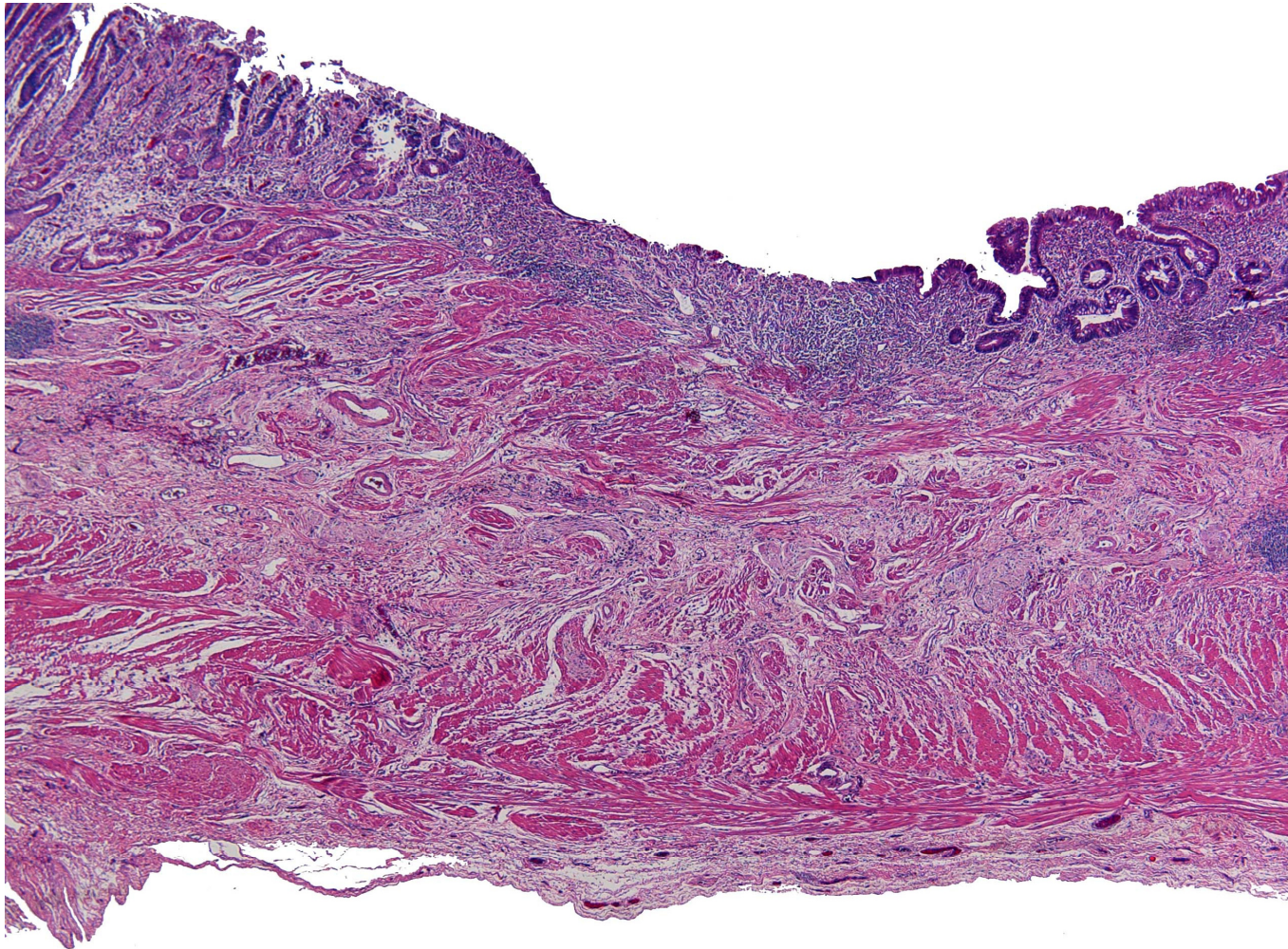


Figure 5