Endoscopic closure of delayed perforations after colorectal endoscopic submucosal dissection (ESD) is challenging due to the fragility of the ulcer bed and the stiffness of the surrounding tissue [1–4]. The case presented here illustrates closure of an ulcer bed with delayed perforation after ESD by endoscopic mucosa-to-mucosa closure using a ring-string traction (▶ Fig. 1; ▶ Video 1).

A 47-year-old woman underwent ESD for a laterally spreading tumor (0-Ia + IIa, 60 × 53 mm) in the transverse colon (▶ Fig. 2a, b). En bloc resection was achieved without any adverse event during the ESD procedure (▶ Fig. 2c, d). Fever and abdominal pain occurred 40 hours later. Delayed perforation was diagnosed on the basis of free air shown on computed tomography. During emergency endoscopy, a pinhole-sized mural defect in the ulcer was confirmed (▶ Fig. 3a). We abandoned closure by clips because of the fragile ulcer bed and the thickly edematous surrounding mucosa; instead we decided to use a ring-string traction technique. To do this, a handmade small (diameter 1 cm) ring of dental floss (string) was grasped with a retractable clip, drawn through the scope, and fixed to the normal mucosa on the anal side of the ulcer. Next, the ring-string was pulled toward the oral side of the ulcer with another retractable clip and likewise fixed to the normal mucosa. With two ring-string tractions, the ulcer became narrow (▶ Fig. 3b). Complete clip closure of the ulcer was then achieved (▶ Fig. 3c). The patient recov-
ered with antimicrobial treatment and was discharged on the 7th day. In this case, ring-string traction showed two advantages. First, delivery of the device through the scope enabled an immediate closure operation. Second, the technique is convenient and cost-effective because it does not require specific devices. This case suggests that ring-string traction would be useful for endoscopic closure after delayed perforation of the ulcer bed after ESD, and could help to avoid emergent surgery.

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Conflict of Interest

The authors declare that they have no conflict of interest.

The authors

Rie Tsukida1, Yoshihiro Kishida1*, Kenichiro Imai1, Kazunori Takada1, Sayo Ito1, Kinichi Hotta1, Hiroyuki Ono1
1 Division of Endoscopy, Shizuoka Cancer Center, Shizuoka, Japan

Corresponding author

Yoshihiro Kishida, MD, PhD
Division of Endoscopy, Shizuoka Cancer Center, 1007 Shimonagakubo, Nagazumi-cho, Surizu-gun, Shizuoka 411-8777, Japan
y.kishida@outlook.com

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