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Endoscopic hand suturing of small intestine and colon: complete suturing of a post-endoscopic submucosal dissection mucosal defect at the anastomosis after right hemicolectomy

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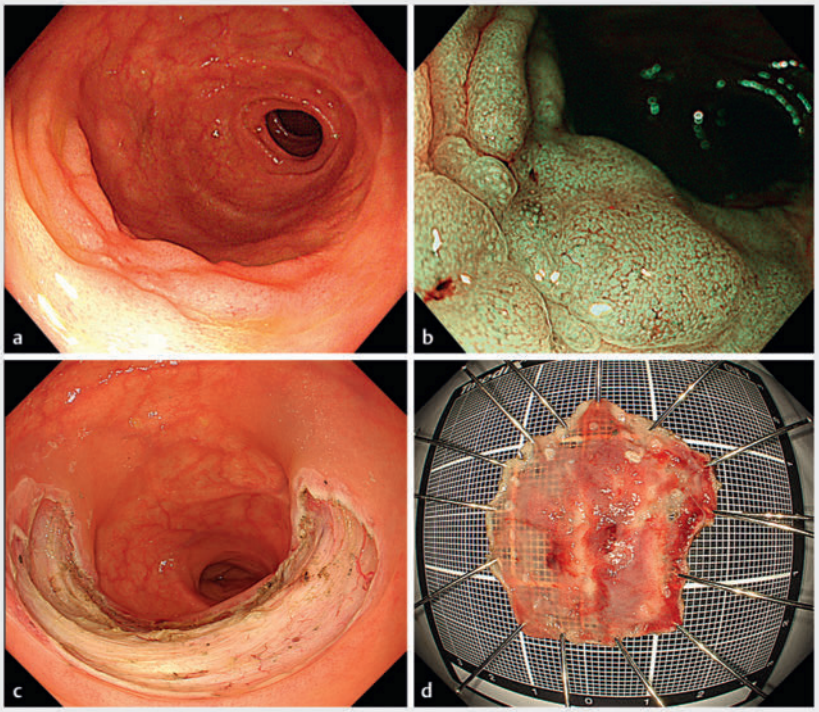
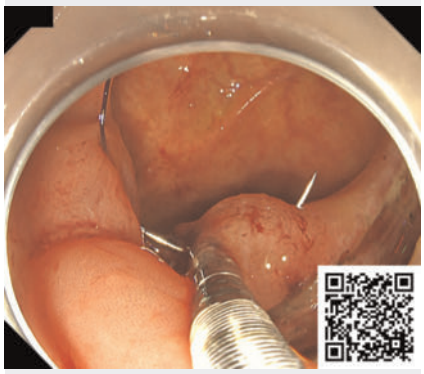


▶ **Fig. 1** Images of the initial procedure to remove a nongranular-type laterally spreading tumor at the postoperative anastomosis: **a, b** before resection; **c, d** following endoscopic submucosal dissection showing: **a** the endoscopic appearance on white-light imaging; **b** the appearance on narrow-band imaging with magnification; **c** the endoscopic appearance of the mucosal defect; **d** the resected specimen, with the lesion removed en bloc.



Video 1 Endoscopic hand suturing of a mucosal defect at the postoperative anastomosis of the small and large intestines.

Endoscopic hand suturing (EHS) was first reported by Goto et al. [1]. Although still in its infancy, it is expected to prevent complications, such as postoperative bleeding and perforation; however, due to the complexity of the procedure and the need to carry the needle to the target ulcer, it is currently used only in the distal colon and stomach [2, 3]. Herein, we report the use of EHS at the anastomotic site after right hemicolectomy.

A 79-year-old man was referred to our hospital because of a nongranular-type laterally spreading tumor that had been noted at the postoperative anastomosis after right hemicolectomy (▶ **Fig. 1 a, b**). We performed endoscopic submucosal dissection under texture and color enhancement imaging (TXI) and magnification using a GIF-XZ1200, with en bloc resection achieved in 88 minutes (▶ **Fig. 1 c, d**). The mucosal defect was semicircumferential, with half of the defect occupying the small-intestinal side.

Because the patient had diabetes mellitus and was taking antithrombotic medication, we needed to perform EHS, which is a secure and firm wound-closure method, using a wound-closure device (SutuArt, Olympus, Tokyo, Japan) and barbed suture (V-Lock, Medtronic, USA), to prevent postoperative bleeding and perforation (▶ **Fig. 2**). The needle was delivered through an overtube, grasping the tail of the needle with the wound-closure device, with the needle tip positioned inside the hood. Technically, complete closure was achieved, and no adverse events were reported (▶ **Fig. 3**, ▶ **Video 1**). No evidence of wound dehiscence was observed at follow-up endoscopy the following day (▶ **Fig. 4**). The patient was able to resume eating the day after treatment and was discharged home on the second postoperative day, without experiencing any complications.

This is the first report of EHS of a mucosal defect at the postoperative anastomosis of the small intestine and colon. EHS could be added to the range of existing closure methods for mucosal defects at a postoperative anastomosis.

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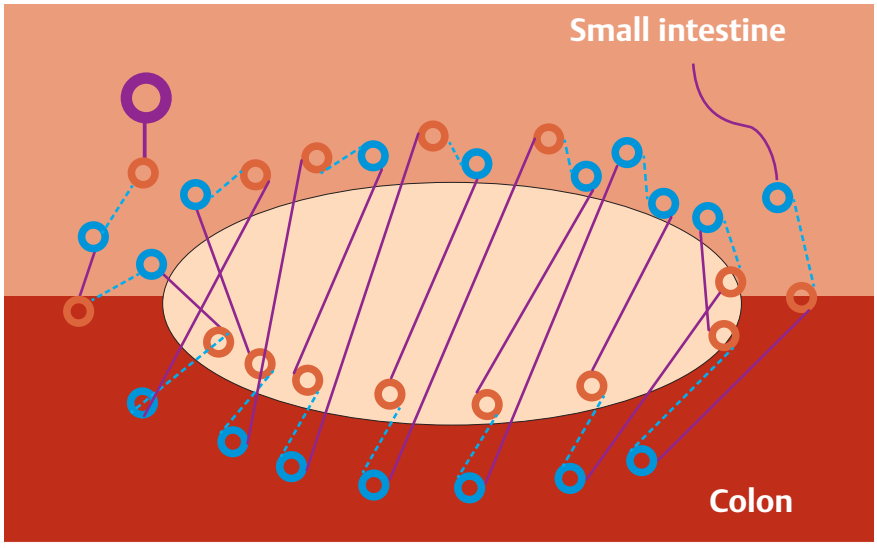
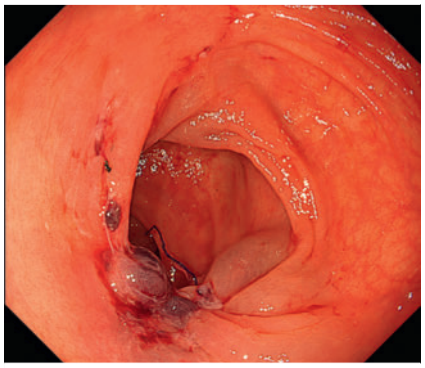
Conflict of Interest

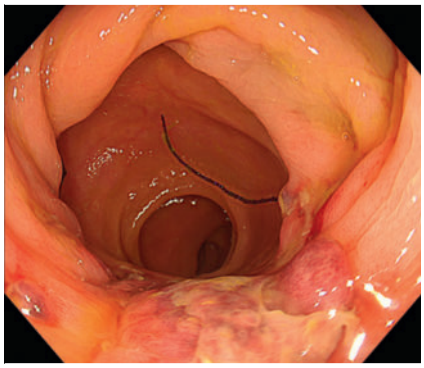
The authors declare that they have no conflict of interest.



▶ **Fig. 2** Schematic of the endoscopic closure of a mucosal defect at the anastomotic site, extending from the small intestine to the colon, using an innovative wound-closure device to suture in the longitudinal direction. Yellow circles, needle entries; blue circles, needle exits; light blue dotted lines, threads within submucosa; purple lines, threads on the mucosa.



▶ **Fig. 3** Endoscopic view of the anastomotic site after endoscopic hand suturing to close a defect extending across the small intestine and colon.



▶ **Fig. 4** Endoscopic view on the day following the endoscopic hand-suturing procedure to close the defect across the small intestine and colon.

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