

## Endoscopic treatment using a knife to correct complete anastomotic obstruction following rectal cancer surgery

Anastomotic stenosis is a well-recognized and troublesome complication following colorectal surgery. Conventionally, cases of complete obstruction have been treated conservatively with a permanent stoma, or have been managed by reoperation with its accompanying risks of morbidity [1–4]. We report successful endoscopic treatment using a knife in a patient with complete anastomotic obstruction following rectal surgery.

A 77-year-old woman underwent laparoscopic surgery for rectal cancer, with a low anterior resection, colorectal anastomosis, and a diverting loop ileostomy to protect the anastomosis. Four months after the operation, digital rectal examination revealed anastomotic obstruction. Colonoscopy showed complete closure of the anastomotic site at 6 cm from the anal verge (● Fig. 1). We attempted endoscopic management of the obstructed anastomotic site while preparing for surgery should it become necessary (● Video 1).

First, a small incision was carefully made to create a hole at the center of the obstructed anastomosis, using the DualKnife (KD-650L; Olympus, Tokyo, Japan) in the Endocut-Q mode with effect 2 (VIO 300D; Erbe Elektromedizin GmbH, Tübingen, Germany) (● Fig. 2). An insulation-tipped knife (ITknife2, KD-611L; Olympus) was then used to enlarge the hole. Following this, an ultrathin endoscope with a 5.0 mm diameter (GIF-XP260; Olympus) was inserted through the created hole to confirm continuity with the proximal colon. Further circumferential excision with the ITknife2 proceeded along the inner border of the surgical staples (● Fig. 3).

### Video 1

Endoscopic treatment using the DualKnife and ITknife2 (Olympus, Tokyo, Japan) for anastomotic site obstruction following rectal cancer surgery.

At the end of the procedure, the colonoscope was able to pass freely through the widened hole (● Fig. 4). There were no complications, such as bleeding or perforation, either during or after the procedure. The ileostomy was closed 2 months later, and there was no disturbance in the patient's stool passage. We were not able to achieve a "dual approach" using colonoscopy, reaching the anastomosis site through the ileostomy, because the bowel was too long. Although fluoroscopy can be helpful for establishing continuity with the proximal colon, direct observation using an ultrathin endoscope through a small opening might be another feasible method. We suggest that an endoscopic approach using a knife could be considered for the management of anastomotic obstruction following surgery.

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Competing interests: None

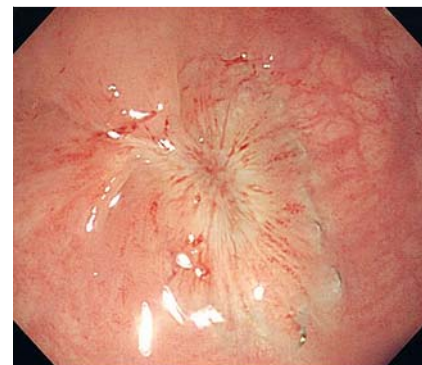
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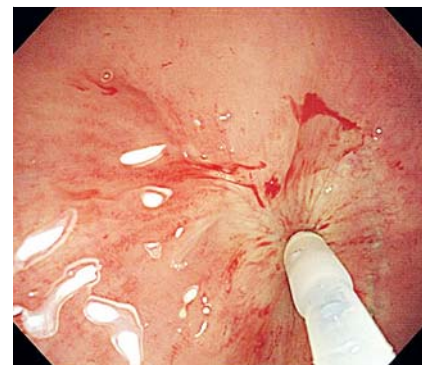
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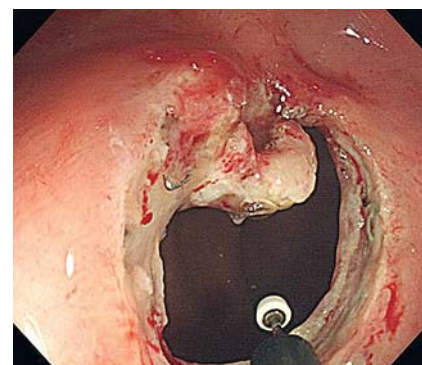
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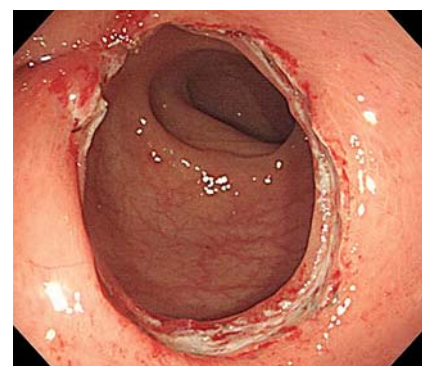
**Fig. 1** Complete obstruction of the anastomotic site after primary resection of rectal cancer. Surgical staples were observed around the circumference of the obstructed anastomotic site.



**Fig. 2** Puncturing using the DualKnife at the center of the obstructed anastomotic site.



**Fig. 3** Circumferential excision with the ITknife2 to the inner margin of the surgical staples.



**Fig. 4** The enlarged hole was sufficient to enable free passage of the colonoscope.

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**Bibliography**

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