

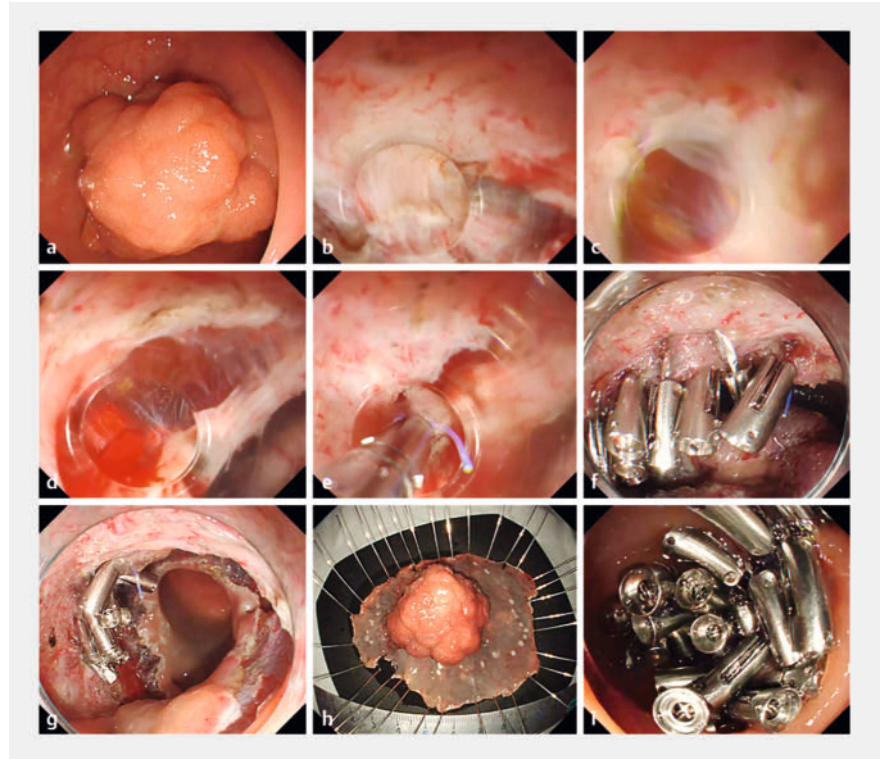
## Reopenable-clip over-the-line method used inside a submucosal pocket during rectal endoscopic submucosal dissection for a full-thickness defect



**▶ Video 1** Full-thickness closure using the reopenable-clip over-the-line method inside a submucosal pocket to close a defect after endoscopic submucosal dissection for a rectal Paris type 0-Ia tumor.

Colorectal endoscopic submucosal dissection (ESD) is a feasible method for en bloc resection of large tumors; however, en bloc resection of Paris type 0-Ia lesions may require muscle layer dissection resulting in intraoperative perforation [1]. We previously reported a “reopenable-clip over-the-line method inside a submucosal pocket” (ROLM-SP) that allows closure of large full-thickness defects in the third space [2]. Here, we describe the first use of ROLM-SP for early rectal cancer (▶ **Video 1**).

The patient was an 86-year-old woman with a 40-mm Paris type 0-Ia tumor in the upper rectum (▶ **Fig. 1**). We performed en bloc resection using the pocket-creation method with the calibrated, small-caliber tip, transparent (CAST) hood and saline immersion [3, 4]. First, a submucosal pocket was created through a mucosal incision. Muscle layer perforation occurred when the central muscle layer was dissected to achieve a negative vertical margin. A 12-mm full-thickness defect was created in the pocket, with



**▶ Fig. 1** Endoscopic images of full-thickness closure using the reopenable-clip over-the-line method in a submucosal pocket (ROLM-SP) in the rectum showing: **a** an early rectal cancer in the upper rectum at 40 mm; **b** dissection of the muscle layer beneath the center of the tumor using the pocket-creation method; **c, d** a 12-mm full-thickness defect below the center of the tumor that was created during dissection; **e, f** full-thickness defect closure performed in the mucosal pocket using ROLM; **g** appearance after residual mucosa had been excised and the tumor completely resected; **h** macroscopic appearance of the excised tumor, which was revealed to be an intramucosal carcinoma; **i** complete closure of the mucosal full-thickness defect.

there being no fluid leakage into the abdominal cavity because of the tissue outside the muscle layer.

The full-thickness defect was closed using the ROLM-SP. First, a clip with line was inserted through the accessory channel. The clip was placed on the muscle layer at the edge of the full-thickness defect. A line from the accessory channel was threaded through the hole in one of the teeth of the clip [5]. The clip was then placed on the muscle of the contralateral edge of the full-thickness defect. Repeat placement of a clip with a line through

the tooth hole onto the muscle at the edge of the defect resulted in progressive closure of the defect. The full-thickness defect was completely closed within the submucosal pocket. The remaining mucosa was excised and the tumor was removed. The remaining mucosal defect was completely closed using the ROLM. The patient was discharged without there being any adverse events. ROLM-SP is an effective technique for closing large full-thickness defects in the third space.

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## Conflict of Interest

The authors declare that they have no conflict of interest.

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