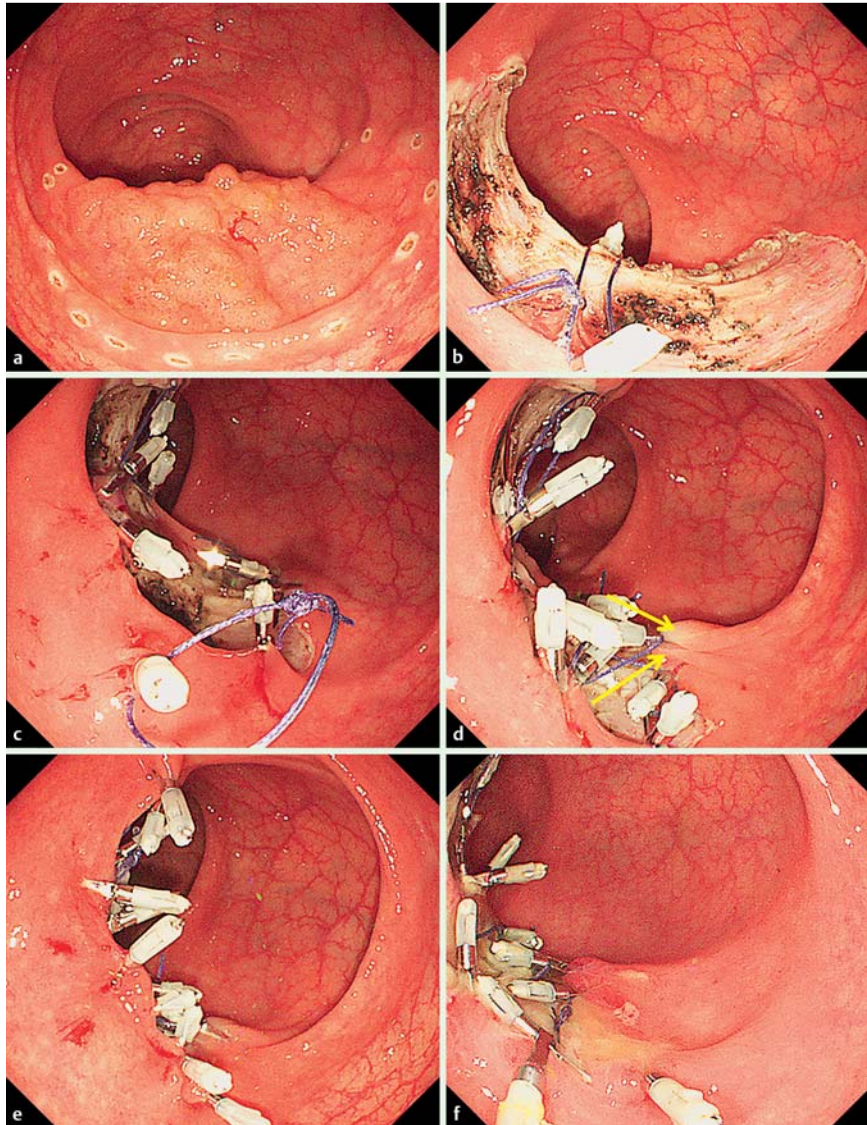


## Simple but reliable endoscopic sliding closure with ring-shaped surgical thread after endoscopic submucosal dissection



**Fig. 1** Stages of endoscopic sliding closure of a large artificial ulcer following endoscopic submucosal dissection (ESD). **a** The early lower rectal cancer located within approximately 1.5 cm of the anal verge. **b** The ring thread was clipped at two points across the maximal diameter of the ulcer. **c** A third clip was placed across to the edge of the ulcer, pulling the first two clips and the ulcer sides together, seen here at the top left section of the ulcer. **d** The procedure was repeated at two other sites on the ulcer using the ring threads. (Arrows show direction of clipping, resulting in opposite clips being pulled together to close the ulcer.) **e** After pulling the three sites together, a conventional clipping closure was performed. **f** The ulcer floor remained tightly closed at follow-up 7 days after ESD.

Although several reports have suggested that the inflammation after endoscopic submucosal dissection (ESD) of the colon can be reduced by closure of the ulcer [1, 2], a simpler and more reliable closure has not been reported for ulcers over 6 cm in diameter.

A 68-year-old woman was diagnosed with both advanced sigmoid colon cancer without metastases and early lower rectal cancer by colonoscopy. Placement of a self-expandable metallic stent was contraindicated, and therefore a prompt laparoscopic left hemicolectomy was re-

quired. As the early lower rectal cancer was located within approximately 1.5 cm of the anal verge (● Fig. 1 a), en bloc resection by ESD was necessary to avoid a permanent stoma. There was very little preparation time before the laparoscopic surgery because of the risk of ileus, and consequently it was necessary to ensure complete closure of the post-ESD ulcer.

An endoscopic sliding closure (ESC) was performed using ring-shaped thread (8, 10, and 12 mm in diameter). First, a 12-mm ring-shaped surgical thread was used to bring together the two sides of the ulcer at its widest point. The ring thread was inserted into the colon through the endoscope channel using grasping forceps and clipped at the two points across the maximal diameter (● Fig. 1 b). A third clip then grasped one side of the ring thread and was drawn across to the edge of the ulcer, pulling the first two clips and the ulcer sides together (● Fig. 1 c). The process was repeated at two other sites on the ulcer using the 8- or 10-mm ring threads (● Fig. 1 d). After the ulcer sides had been drawn together in this way, conventional clipping closure was performed to close the ulcer completely (● Fig. 1 e). To avoid a mucosal bridge, the clips were applied to the inverted muscular layer under deflation, which ensured that the serosal side was not exposed (● Video 1).

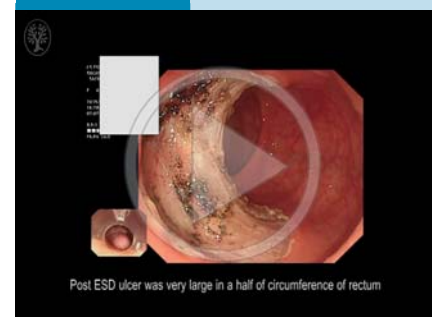
At follow-up 7 days' after ESD, the ulcer remained closed tightly (● Fig. 1 f).

ESC is a very simple and reliable closure method.

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**Competing interests:** None

### Video 1



Endoscopic sliding closure of large artificial ulcer using ring-shaped surgical thread after endoscopic submucosal dissection.

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## Bibliography

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