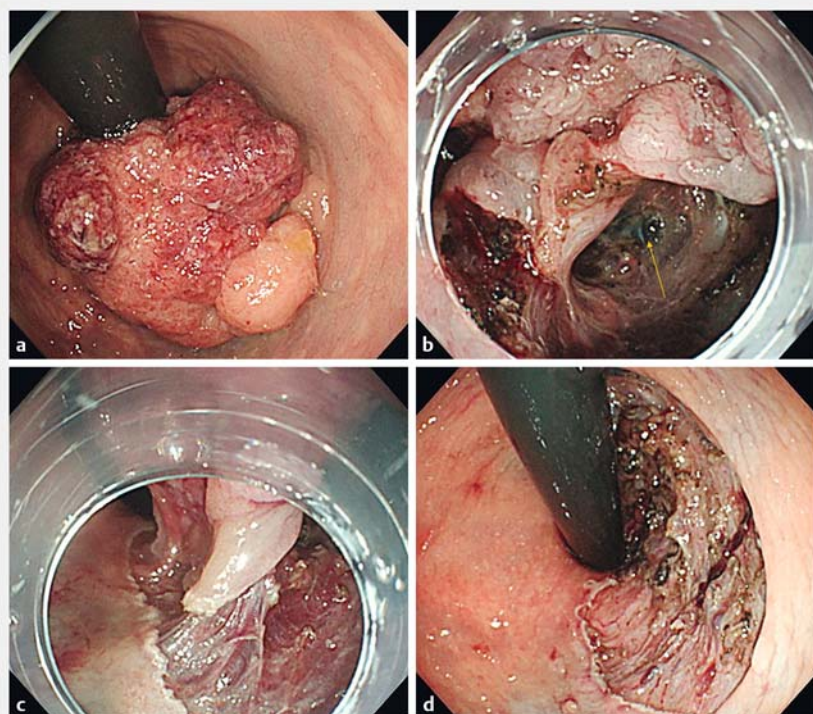
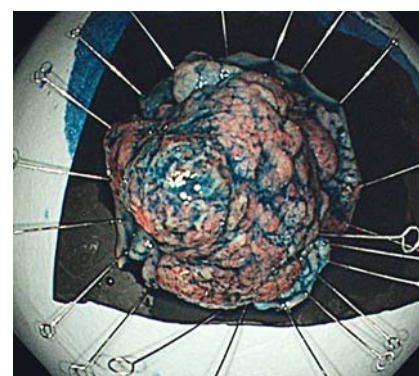


Double-tunnel method for treatment of colorectal lesions with severe fibrosis with endoscopic submucosal dissection



► **Fig. 1** Endoscopic images showing: **a** a protruded lesion in the rectum (60 mm in size) on retroflexed view; **b** the entrance of the first tunnel at the anal site (yellow arrow); **c** the remaining side of lesion on retroflexed view; **d** the appearance after completion of submucosal dissection, which was achieved with no muscle injury.



► **Fig. 2** The opened specimen revealed submucosally invasive carcinoma, with negative margins, measuring 59 × 50 mm.

(► **Fig. 1 d**). The tumor was 59 × 50 mm in size; histological examination revealed a submucosally invasive carcinoma, with all the margins being tumor-free (► **Fig. 2**).

ESD using the double-tunnel method can achieve reliably efficient and safe resection of colorectal lesions with severe fibrosis or displaying the muscle-retracting sign.

Endoscopy_UCTN_Code_TTT_1AQ_2AD

Competing interests

None

The authors

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Endoscopic submucosal dissection (ESD) for gastrointestinal lesions enables en bloc resection with tumor-free margins and is not limited by the lesion size or location. However, en bloc removal of colorectal lesions with severe fibrosis is difficult and requires a longer time [1, 2]. We report the successful resection of an early rectal tumor by colorectal ESD with a new method: double-tunnel ESD.

A 68-year-old man was referred to our hospital for treatment of a large sub-protruded rectal lesion measuring about 60 mm in diameter (► **Fig. 1 a**). He underwent ESD, which was performed using a dual knife (KD-650U; Olympus, Tokyo, Japan), with the patient under deep sedation.

Our plan to achieve en bloc resection of this large sub-protruded lesion, a type of lesion that often has severe fibrosis or displays the muscle-retracting sign during ESD [3], was first to open two different tunnels on each side of the severe fibrosis from the anal side of the lesion (► **Fig. 1 b**). This technique allows good traction to be maintained and an appropriate dissection line to be identified, even in the presence of severe fibrosis. Subsequently, the two tunnels were connected (► **Video 1**). Finally, mucosal and submucosal dissections were performed from both sides to open the lesion from the lower side against gravity (► **Fig. 1 c**). After this, the lesion was completely resected en bloc without any complications



Video 1 Colorectal endoscopic submucosal dissection with the double-tunnel method is used to resect a lesion with severe fibrosis efficiently and safely because good traction is maintained and an appropriate dissection line can be identified.

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DOI <https://doi.org/10.1055/a-0599-0401>

Published online: 9.5.2018

Endoscopy 2018; 50: E168–E169

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Stuttgart · New York

ISSN 0013-726X

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