Wide-tunnel endoscopic submucosal dissection with clip-and-line traction for large circumferential esophageal neoplasm

Endoscopic submucosal dissection (ESD) has become the main method for management of superficial esophageal lesions [1]. However, it remains technically challenging and time-consuming for circumferential lesions [2]. The strategies reported for circumferential diseases have operational complexity [2, 3]. Herein, we present an ESD method involving a single, wide tunnel and clip-and-line traction for resection of a large circumferential esophageal neoplasm.

A 68-year-old man with a large circumferential esophageal lesion was referred to our hospital. Magnifying chromoendoscopy suggested a noninvasive squamous cell carcinoma, and biopsy confirmed a high grade intraepithelial neoplasia. Computed tomography detected no nodal or distal metastases. Under multidisciplinary discussion and the patient's informed consent, esophageal ESD was chosen (**Video 1**).

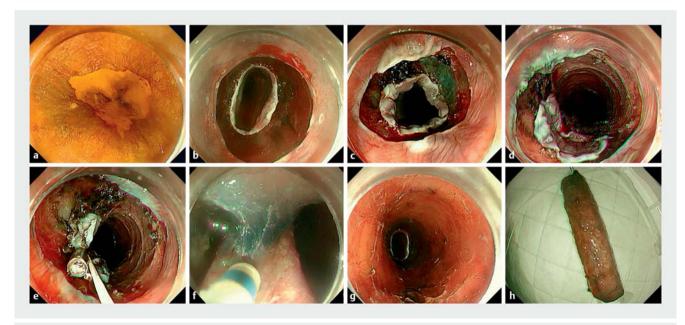
The patient underwent general anesthesia. A dual knife was used during the whole procedure. First, after lesion

marking, anal and oral circumferential incisions were performed successively (**> Fig. 1 a-c**). Second, after submucosal





▶ Video 1 Single-tunnel endoscopic submucosal dissection with clip-and-line traction applied to two sites for a large circumferential esophageal neoplasm.



▶ Fig. 1 Endoscopic views during the single-tunnel endoscopic submucosal dissection with clip-and-line traction applied to two sites on the oral side of the lesion. a A circumferential esophageal lesion. b Circumferential incision of the anal side of the lesion. c Circumferential incision of the oral side of the lesion. d Creation of a single, wide tunnel. e A single clip-and-line system was applied to two sites on the oral side for traction. f With the undissected mucosa retracted, submucosal dissection was performed with adequate exposure of the remaining submucosal layer. g The artificial ulcer after endoscopic submucosal dissection. h The dissected mucosa.

injection, a single, wide tunnel was created from the oral side to the anal incision (Fig.1d). The undissected mucosa retracted, reducing the remaining lesion and facilitating the ongoing procedure. Third, a single clip-and-line traction system was applied to two sites on the oral side of the lesion, facilitating the ESD procedure with adequate exposure of the submucosal layer (> Fig. 1 e, f). Finally, the procedure was successfully performed, with en bloc resection and a procedure time of 96 minutes (▶ Fig. 1 g, h). There were no significant intraoperative adverse events. The specimen showed a squamous cell carcinoma, with invasion of the muscularis mucosa and negative margins.

The patient received oral glucocorticoid treatment postoperatively. He developed mild stenosis after 5 weeks, and to date has received three endoscopic dilations up to 13 mm. No recurrence was found at 2 months' follow-up.

In conclusion, ESD with single, wide tunnel and clip-and-line traction applied to two sites on the oral side of the lesion can facilitate safe and fast resection of large circumferential esophageal neoplasms.

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Competing interests

The authors declare that they have no conflict of interest.

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