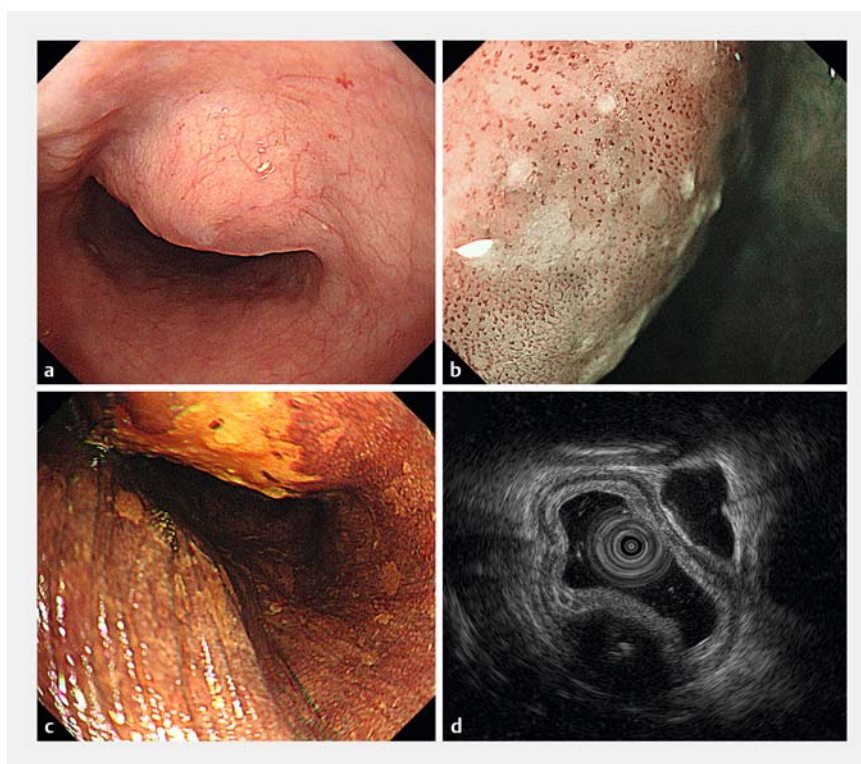


## Endoscopic submucosal dissection for superficial esophageal cancer overlying a submucosal tumor originating from the muscularis propria

A 62-year-old man was referred to our hospital for treatment of an esophageal cancer overlying a submucosal tumor (SMT). The SMT was present in the middle thoracic esophagus, and endoscopic ultrasonography (EUS) demonstrated a hypoechoic tumor with calcification inside, originating from muscularis propria. We diagnosed it as a benign tumor, such as a leiomyoma, and it underwent no change in size or form after 8 years of follow-up. The cancer however was superficial, and magnifying endoscopy combined with narrow-band imaging (NBI) revealed tortuous B1 vessels with irregular diameters and shapes. The biopsy specimen revealed squamous cell carcinoma, and endoscopic submucosal dissection (ESD) was therefore performed (► Fig. 1).

At first, we attempted to make an incision in the oral and anal sides using a Dual-Knife and then to add the circumferences using an IT knife nano. However, fluent endoscopic maneuverability in proximity to the SMT was difficult because the endoscope came into contact with the SMT, particularly during the incision on the anal side, which passed across the SMT and in a valley between the SMT and normal mucosa. Therefore, we used an SB Knife Jr for the incision and submucosal dissection of these sites. The SB Knife Jr is a scissor-type knife, which is available for dissection with a fixing endoscope, thereby preventing inadvertent injury to the muscular layer and promoting safe ESD [1]. Furthermore, we employed a clip-with-line method to dissect effectively. We achieved successful ESD of the overlying cancerous mucosa alone, without any complications in a procedure lasting 100 minutes (► Fig. 2; ► Video 1).

This is the first case report of a cancer overlying an SMT originating from muscularis propria that was successfully treated by curative ESD [2–4]. Based on our experience, we emphasize the im-



► **Fig. 1** Imaging of the superficial esophageal tumor and submucosal tumor: **a** on endoscopy, showing the lesions in the middle thoracic esophagus; **b** on magnifying endoscopy combined with narrow-band imaging (NBI), showing loop-like abnormal vessels with dilation, and irregular diameters and shapes in the intraepithelial carcinoma; **c** non-staining of the tumor with iodine; **d** on endoscopic ultrasonography, showing a hypoechoic lesion of 15 mm in diameter originating from the muscularis propria.

portance of EUS to define the layer from which the SMT originates and the use of NBI magnifying endoscopy to diagnose invasion depth, followed by determination of an adequate endoscopic resection strategy. In addition, an SB Knife and traction-assisted strategy were efficient and effective for safe endoscopic treatment.

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### Competing interests

None

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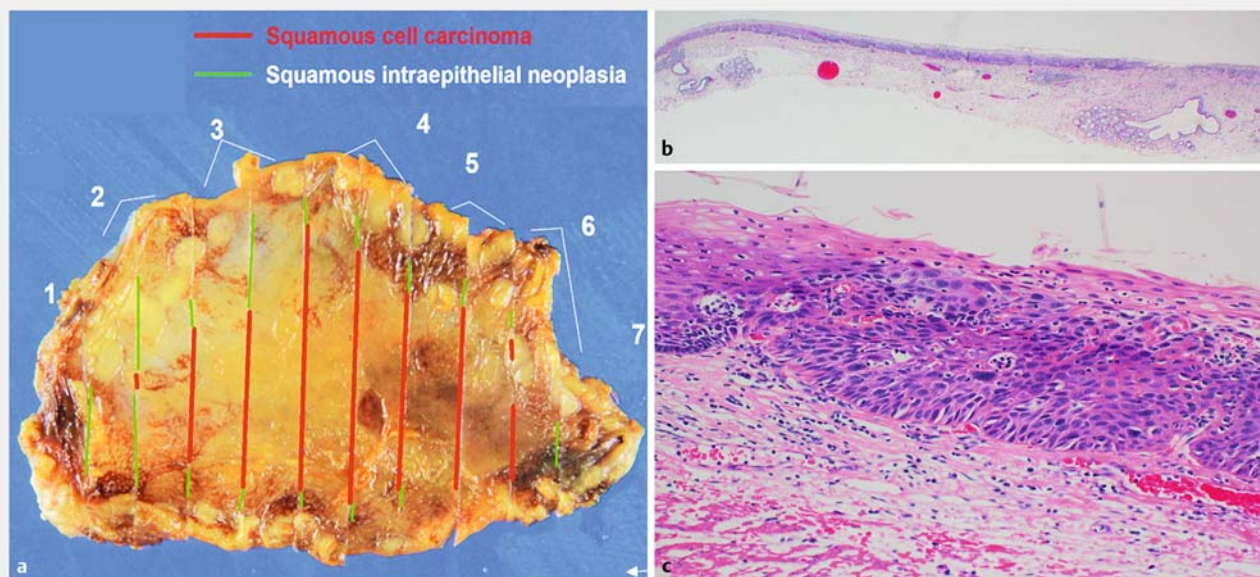
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► **Fig. 2** Pathology of the resected specimen showing: **a** a mixed lesion, which was found to be a 20-mm squamous cell carcinoma with an area of squamous epithelial neoplasia; **b, c** (on section 4 stained with hematoxylin and eosin [H&E]) that the invasion depth was to the lamina propria mucosa and there was no lymphovascular involvement with a negative cut end.



► **Video 1** Video showing successful endoscopic submucosal dissection of an esophageal cancer overlying a submucosal tumor that was originating from the muscularis propria using the SB Knife Jr and a traction-assisted strategy.



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