

Submucosal tunneling endoscopic resection for leiomyomas located on opposite esophageal walls: the role of a tortuous submucosal tunnel

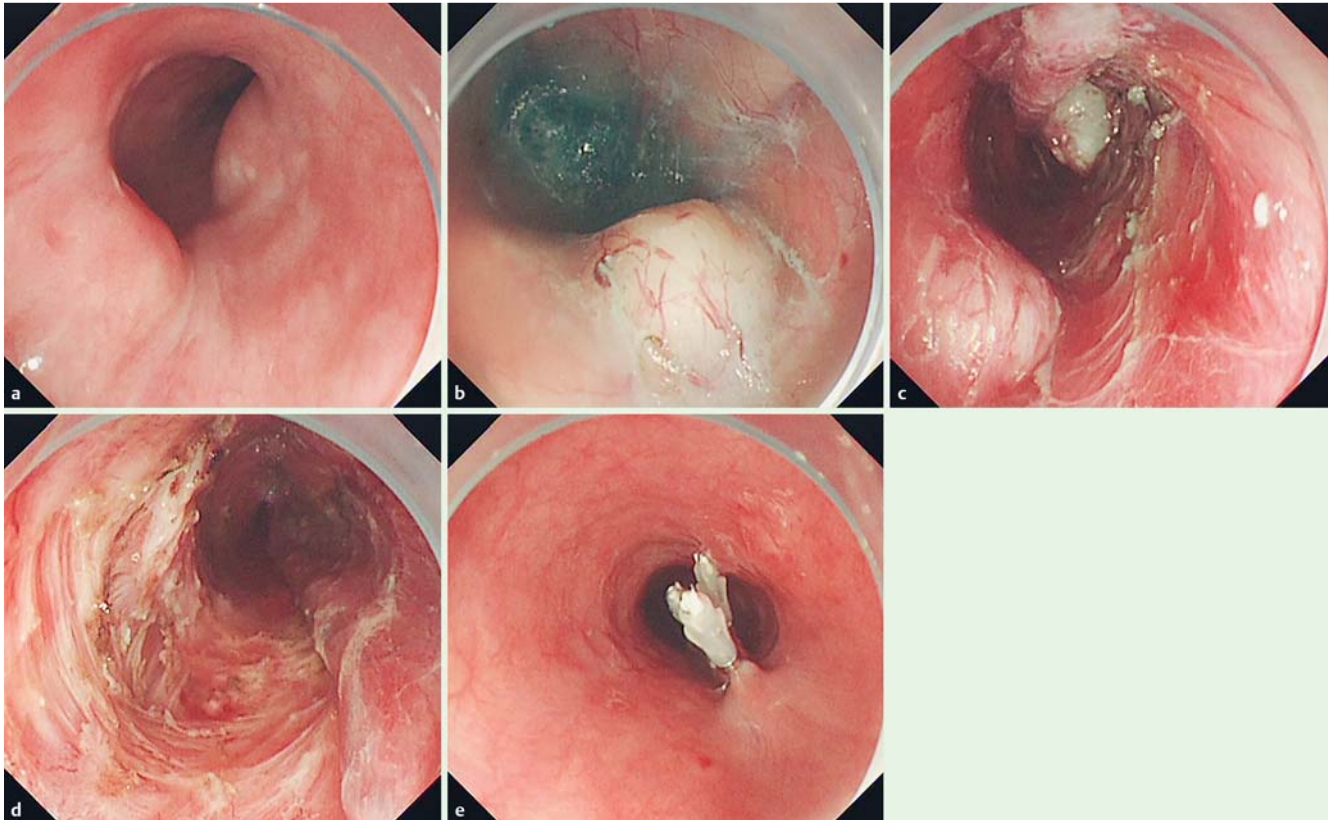


Fig. 1 Endoscopic views showing: **a** two protruding lesions in the esophagus; **b** the first tumor in the submucosal tunnel; **c** the second tumor within the same submucosal tunnel; **d** the wound surface after removal of the two tumors; **e** the mucosal entry point closed with several clips.

A 50-year-old man presented to our hospital with a 1-month history of epigastric discomfort. Esophagogastroduodenoscopy (EGD) revealed two protruding lesions on the anterior and posterior esophageal walls, about 27 cm and 30 cm from the incisors, respectively (▶ **Fig. 1 a**; ▶ **Video 1**). Endoscopic ultrasonography (EUS) revealed that the tumors were originating from the muscularis propria layer and had no risk features.

Submucosal tunneling endoscopic resection (STER) was performed. After a longitudinal mucosal incision had been made, a submucosal tunnel was created and the first submucosal tumor (SMT) could be seen (▶ **Fig. 1 b**). As the two tumors were located on opposite walls of the esophagus, it was impossible to locate the second tumor using purely a straight submucosal tunnel, so a tortuous tunnel was created. Submucosal injection of methylene blue

was performed to preset the tunnel route, and the two separate tumors were identified, with a distance of about 3 cm between them (▶ **Fig. 1 c**). The tumors were carefully dissected off the muscularis propria layer (▶ **Fig. 1 d**), and the mucosal entry was closed (▶ **Fig. 1 e**; ▶ **Video 2**). The STER procedure was completed uneventfully within 80 minutes. The diameters of the resected SMTs were 2 cm and 1.5 cm (▶ **Fig. 2**) and they were both leiomyomas histopathologically.

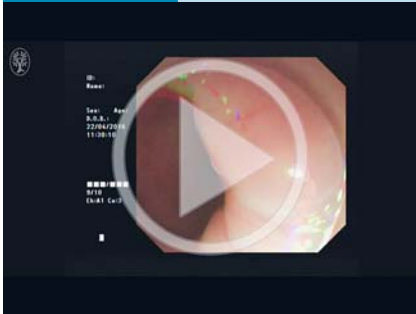
STER has been demonstrated to be safe and effective for treating upper gastrointestinal SMTs [1, 2]. There have been only a few reports regarding STER for multiple SMTs, and the tumors in each of the reported cases were in the same or adjacent parts of the esophageal/gastric wall, so a single submucosal tunnel was sufficient to remove the tumors [3–5]. In the present case, the two SMTs were found on opposite



Fig. 2 Macroscopic appearance of the two resected tumors.

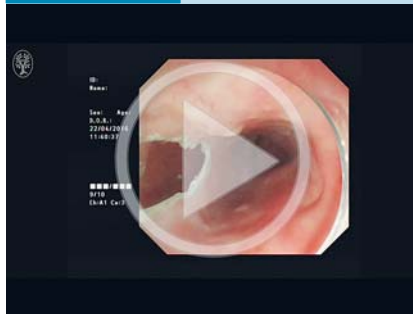
esophageal walls, and at first two submucosal tunnels were recommended. This however would mean excessive submucosal dissection and two tunnel entries, which, as well as being time-consuming,

Video 1



Endoscopy showing two protruding lesions on opposite walls of the esophagus.

Video 2



The submucosal tunneling endoscopic resection (STER) procedure being performed for two tumors on opposite esophageal walls.

would increase the complication rate. We successfully removed both of the tumors by STER within a single tunnel by creating a tortuous submucosal tunnel.

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Competing interests: None

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