A 72-year-old woman presented with a 10-month history of epigastric discomfort. Esophagogastroduodenoscopy (EGD) detected two protruding lesions located at the greater curvature of the gastric fundus (Fig. 1). Endoscopic ultrasound showed two hypoechoic tumors arising from the muscularis propria layer (Fig. 2). Computed tomography (CT) scan revealed an extraluminal component of the large mass (Fig. 3).

In order to achieve a complete submucosal resection, endoscopic full-thickness resection (EFR) was first considered because of the extreme difficulty in creating submucosal tunneling for two lesions in the gastric fundus. On the basis of the large lesion with an extraluminal component, an innovative technique of combining EFR with natural orifice transluminal endoscopic surgery (NOTES) was taken into account. EFR was used to remove the small tumor as well as to create a transgastric orifice for the subsequent NOTES to resect the extraluminal tumor. Accordingly, the surgery was performed as follows (Video 1). A circumferential full-thickness resection was performed around the small tumor. When the endoscope passed through the EFR-produced perforation into the abdominal cavity, the extraluminal tumor was found. The
tumor was then successfully dissected off using endoscopic submucosal dissection (ESD), whereby a submucosal injection was performed to preserve the integrity of the mucosal layer. Finally, the gastric defect was sutured with endoclips. The two resected specimens, the large one measuring 15×9 mm and the small 10×8 mm, were both low-risk gastrointestinal stromal tumors (GISTs) on histopathology.

In this case, a combination of EFR with NOTES was created to prevent duplicate full-thickness incisions for resection of multiple gastric GISTs, which minimized transgastric defects and reduced closure difficulty so as to eliminate abdominal trauma and its related complications. We believe this new technique is applicable for resecting multiple submucosal tumors, including but not limited to lesions located in the gastric fundus, especially for those with an extraluminal component.

Competing interests

The authors declare that they have no conflict of interest.

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