Removal of an extraluminal gastric gastrointestinal stromal tumor: the role of submucosal tunneling endoscopic resection

A 47-year-old woman presented with a 10-year history of epigastric discomfort. She had had a thyroid adenoma treated surgically 2 years previously. Esophagogastroduodenoscopy (EGD) revealed a protrusive lesion at the lesser curvature of the gastric corpus (▶ Fig. 1). Endoscopic ultrasonography (EUS) revealed that the tumor was originating from the serosal layer and was exhibiting extraluminal growth (▶ Fig. 2). Computed tomography (CT) scanning revealed that the lesion was located at the gastric corpus and was protruding into the abdominal cavity (▶ Fig. 3;▶ Video 1).

Submucosal tunneling endoscopic resection (STER) was performed (▶ Fig. 4;▶ Video 2). After a longitudinal mucosal incision had been made, a submucosal tunnel was created, which allowed the lesion to be visualized. The tumor was carefully dissected off, following which, we could see the omentum. The mucosal entry was then closed. The STER procedure was completed uneventfully within 100 minutes. The resected tumor, which measured 2.0 × 2.0 × 1.5 cm, was a low-risk gastrointestinal stromal tumor (GIST) on histopathology (▶ Fig. 5).

Surgical or endoscopic removal is recommended for symptomatic or large (≥2 cm) gastric GISTs [1]. Endoscopic resection is a minimally invasive method for GISTs, and current methods include endoscopic submucosal dissection (ESD), endoscopic submucosal excava-

VIDEO 1

▶ Video 1: Computed tomography (CT) of the lesion showing that it was located at the gastric corpus and protruding into the abdomi-

nal cavity.
inal gastric GISTs; however, complica-
tions such as perforation, fistula forma-
tion, and peritoneal infection may ensue,
and closure of the defect is technically
difficult [3]. STER can maintain the muco-
sal integrity and decreases the difficulty
of closure of the mucosal defect, which
theoretically reduces the risks of the
above complications. It has been demon-
strated to be safe and effective for treat-
ing gastric GIST, although all of the re-
ported cases were intraluminal GISTs [4]
[5].

In the present case, we successfully re-
moved an extraluminal gastric GIST using
the STER technique. As far as we know,
this is the first reported case that has
used STER for an extraluminal gastric
GIST.

Endoscopy_UCTN_Code_TTT_1AO_2AG

Competing interests

None

▶ Video 2

▶ Video 2: The submucosal tunneling endoscopic resection (STER) procedure. A submucosal injection was made about 5 cm proximal
to the tumor and, after a longitudinal mucosal incision had been
made, a submucosal tunnel was created by endoscopic submuco-
sal dissection (ESD). Submucosal injection at the tumor site was
used to locate the tumor, which was visualized in the tunnel. The
tumor was carefully dissected off, following which, the omentum
could be seen. Finally the mucosal entry was closed with several
clips.

▶ Fig. 4 The submucosal tunneling endoscopic resection (STER) procedure. a The tunnel entry is created; b the tumor is identified in the sub-
mucosal tunnel; c the tumor in closer view; d the wound surface after removal of the tumor (note: the omentum is visible); e the tunnel entry
is closed with several clips. f Macroscopic appearance of the resected tumor.
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DOI http://dx.doi.org/10.1055/s-0042-119047
Endoscopy 2017; 49: E11 – E13
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Stuttgart · New York
ISSN 0013-726X

Fig. 5 Histopathological views of the resected specimen (magnification × 100) stained with: a hematoxylin and eosin (H&E); b CD117; c Dog-1; and d Vim. The findings were consistent with a gastrointestinal stromal tumor (GIST).