

Gastric submucosal tumor with extraluminal growth: successful resection with transgastric natural orifice transluminal endoscopic surgery



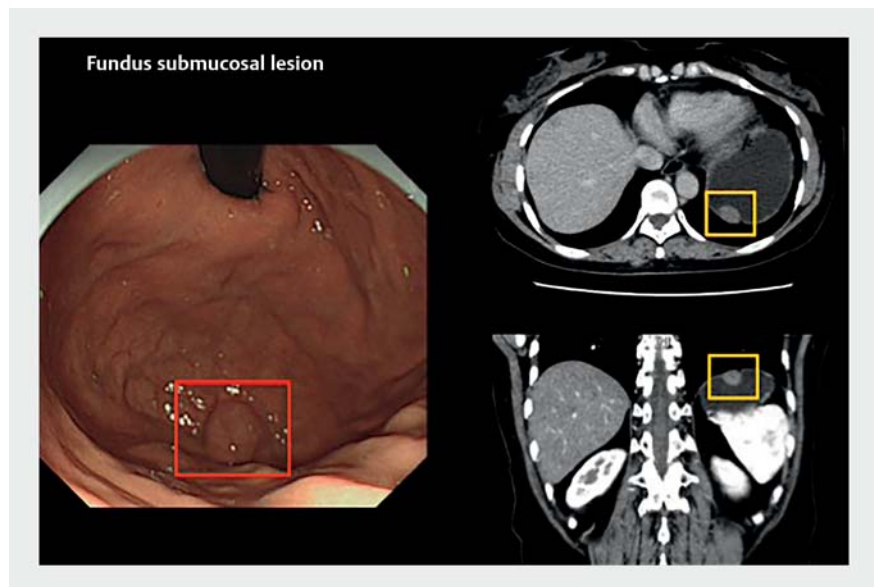
A 56-year-old woman was admitted to our hospital for endoscopic resection of a 2.8-cm gastric fundus submucosal lesion (► **Fig. 1**) incidentally found during a screening endoscopy. An extraluminal component was seen on an abdominal enhanced computed tomography (CT) scan (► **Fig. 1**). The lesion was hypoechoic and originated from the muscle layer on endoscopic ultrasonography (► **Fig. 2**).

After multidisciplinary team discussion, we decided to remove the lesion using endoscopic resection (► **Video 1**). The procedure was performed with the patient under endotracheal intubation and general anesthesia in a left lateral decubitus position and with antibiotic prophylaxis.

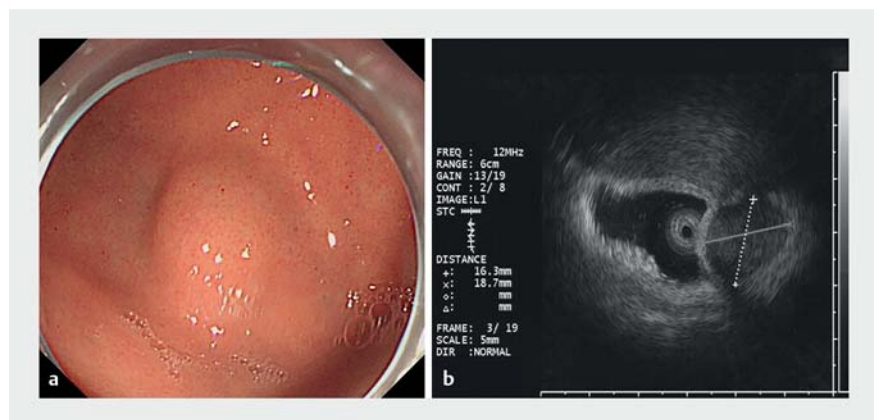
An incision was made along the incisura lesion of the gastric fundus and the entire layer of the gastric wall was incised using a hook knife and IT knife (► **Fig. 3**). The endoscope was passed into the abdominal cavity, and the extraluminal growth of the tumor body from the gastric wall could be seen (► **Fig. 4**). The snare was applied directly to the tumor body to bring the lesion into the luminal side and to finish the resection (► **Fig. 5**). The wound was treated with hot coagulation forceps, and the incision in the gastric wall was then sutured with titanium endoclips.

Subsequently, the patient remained asymptomatic and was discharged after 3 days without complications. The final pathological examination revealed a 2.8-cm low-risk gastrointestinal stromal tumor [CD 34 (+), CD 117 (+), Dog-1 (+), SDHB (+), desmin (rare +), Ki-67 (<5% +), SOX10 (-), STST6 (-), Bcl-2 (+), and S-100 (-)].

Endoscopic resection maneuvers for gastric submucosal tumors have advanced substantially in recent decades [1–3]. However, patients with a large (>30 mm) submucosal tumor, an extraluminal com-



► **Fig. 1** Endoscopic view and computed tomography images of a gastric stromal tumor in the fundus of stomach.



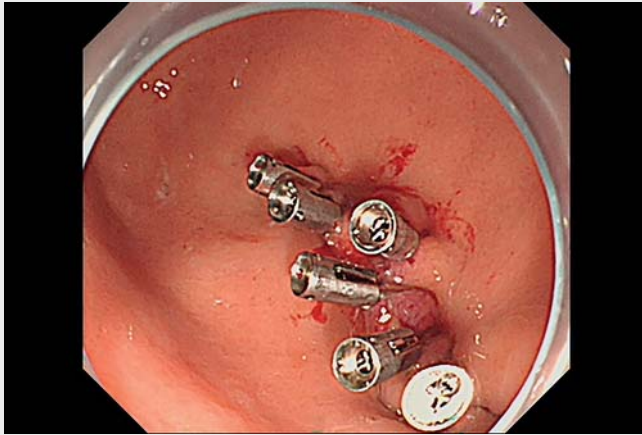
► **Fig. 2** Endoscopic ultrasonography view images of a gastric stromal tumor in the fundus of stomach.

ponent, and ulceration are recommended for laparoscopic resection (with/without endoscopic assistance) [4]. This case demonstrates the usefulness and feasibility of endoscopic resection as a treatment method for gastric submucosal tumors with extraluminal growth.

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▶ **Video 1** Gastric submucosal tumor with extraluminal growth: successful resection with transgastric natural orifice transluminal endoscopic surgery (NOTES).

Competing Interest

The authors declare that they have no conflict of interest.

The authors

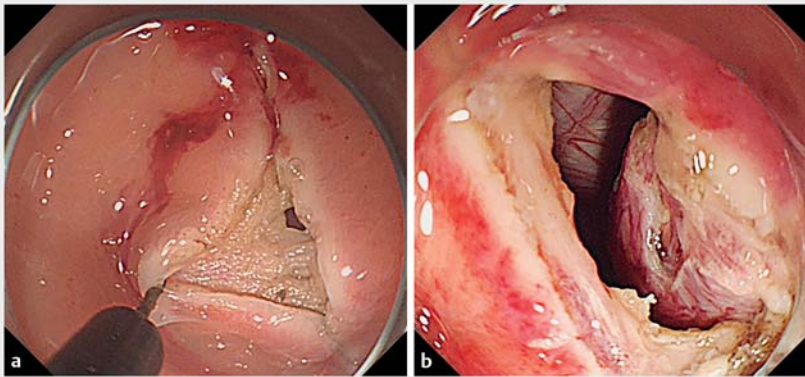
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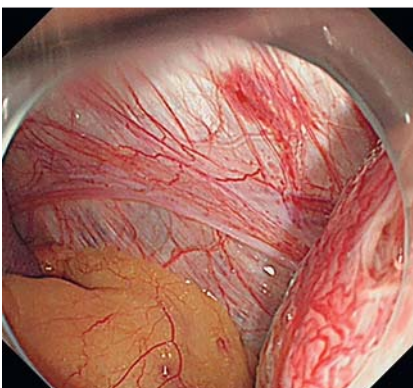
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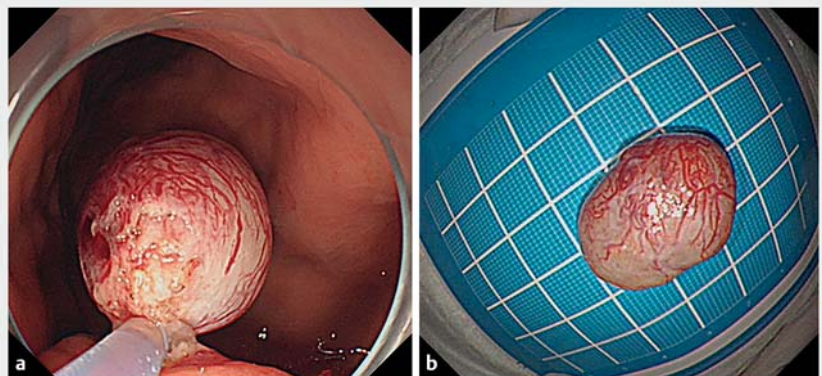
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▶ **Fig. 3** Endoscopic view of the resection process. **a** Incision of the gastric wall by hook knife. **b** Endoscopic view after incision of the entire layer of the gastric wall.



▶ **Fig. 4** Endoscopic view showing an abdominal cavity after full-thickness incision.



▶ **Fig. 5** Endoscopic view of the final cut and the successfully resected specimen.

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