Combined preclosure technique and traction method facilitating endoscopic full-thickness resection of a gastric fundal gastrointestinal stromal tumor

We describe the case of a 47-year-old man with a gastric fundal mass found on upper gastrointestinal endoscopy (▶Fig.1a). Endosonography showed a 2.5-cm subepithelial mass originating from the muscularis propria, without lymph node involvement (▶Fig.1b). A diagnosis of a gastrointestinal stromal tumor (GIST) was made by fine-needle biopsy, and the patient was referred for endoscopic full-thickness resection (EFTR) of the mass.

Initially a semicircumferential incision was made with an IT knife (Olympus, Tokyo, Japan) (▶Fig.2a; ▶Video 1), then the lesion was lifted upward and well exposed using clip-with-line traction.

▶Fig.1 A huge gastrointestinal stromal tumor (GIST) seen on: a endoscopic view showing a 2.5-cm submucosal tumor in the fundus of the stomach; b endoscopic ultrasonography view showing the GIST was originating from the muscularis propria layer.

▶Fig.2 Stages in the endoscopic full-thickness resection of a gastric fundal gastrointestinal stromal tumor (GIST) using the preclosure technique and traction method: a the huge GIST was revealed after peritumor gastric mucosa and submucosa dissection; b full-thickness resection was performed around the tumor using clip-with-line traction; c once most of the tumor had been excavated, the gastric perforation was preclosed using clips with the help of the clip-with-line traction; d the remaining tissues adherent to the tumor were dissected; e the gastric defect was completely closed with a line of clips. f Macrosopic appearance of the resected specimen showing the full-thickness structure of the peritumor gastric wall.
Most of the GIST was rapidly dissected off the muscularis propria, leaving approximately a 2.6-cm defect. Owing to worries over the mass falling into the abdominal cavity and being unable to close the defect, the defect was preclosed linearly with clips under clip-with-line traction before removal of the mass (▶ Fig. 2c). The GIST was then safely and entirely resected (▶ Fig. 2d) and reliable closure of the defect was achieved with additional clips (▶ Fig. 2e). The extracted specimen displayed complete resection with adherent full-thickness gastric tissue (▶ Fig. 2f). The patient had no adverse events and was discharged after 3 days.

Although various methods and devices for gastrointestinal wall closure have sprung up in recent years, most of them require complex or specialized equipment and are technically challenging [1–4]. In this study, we demonstrated that the clip-with-line traction-assisted preclosure technique is simple and effective for EFTR and defect closure afterwards, independent of complex or specialized equipment. In addition, this new technique has three major advantages: efficient closure of the defect with only regular clips by gathering two sides of the defect into a line, reliable prevention of the GIST falling into the abdominal cavity by closing the defect before complete resection, and marked reduction in peri-tonitis and gas-related complications by shortening of the perforation time.

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