Laparoscopy and endoscopy cooperative surgery is a safe and effective novel treatment for duodenal neuroendocrine tumor G1

The European Neuroendocrine Tumor Society guidelines recommend endoscopic resection for nonampullary duodenal neuroendocrine tumors (NETs) <10 mm in size without any metastasis [1]; however, endoscopic resection for duodenal NETs is challenging [2]. Gincul et al. reported 32 duodenal NETs treated by endoscopic mucosal resection [3]. The R0 resection rate was 50%, the overall complication rate was 38%, and one procedure-related death occurred. Suzuki et al. reported the outcome of endoscopic submucosal dissection (ESD) for 37 rectal, 2 gastric, and 3 duodenal NET cases [4]. The R0 resection rate was 98% but the perforation rate of duodenal ESDs was 66%. Laparoscopy and endoscopy cooperative surgery (LECS) [5] is one of the options to resect duodenal NETs safely. A 77-year-old man was referred to our hospital for treatment of duodenal NET G1 diagnosed by biopsy. Esophagogastroduodenoscopy revealed a 5-mm submucosal tumor at the duodenal bulb (Fig. 1). Endoscopic ultrasonography revealed a hypoechoic lesion in the submucosal layer just above the muscularis propria (Video 1).
propria (▶Fig. 2). It was considered that an R0 resection would be too difficult to achieve and the risk of perforation would be too great with endoscopic resection. Hence, we selected LECS (▶Video 1).

First, surgeons exposed the duodenal bulb and the second portion laparoscopically. Then, endoscopists and surgeons marked around the lesion, and mucosal circumferential incision was performed endoscopically (▶Fig. 3). After that, we performed a quarter of the full-thickness incision endoscopically, with the remaining three-quarters being performed laparoscopically. Finally, surgeons performed laparoscopic suturing, and endoscopists confirmed duodenal lumen patency and no leakage. The overall operative time was 3 hours 41 minutes, and the hemorrhage volume was 10 mL. The pathological diagnosis was duodenal NET G1, T1b-SM2, ly0, v0, HM0, VM0, and 5 mm in size (▶Fig. 4). The NET invasion extended to just above the muscularis propria (▶Fig. 5). Notably, endoscopic resection seemed impossible. At 3 years after LECS, local recurrence and metastasis have not been observed. Our findings suggest that LECS is an effective treatment for duodenal T1b NET G1.

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Competing interests

None

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