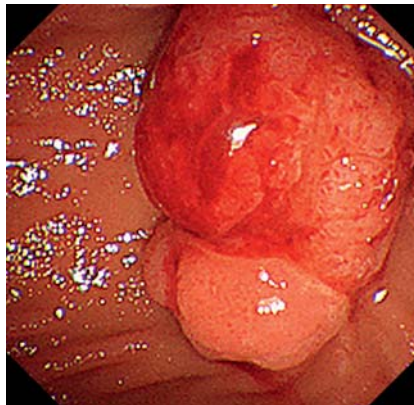


Miniprobe ultrasonography guidance during endoscopic submucosal dissection of an ampullary duodenal lesion

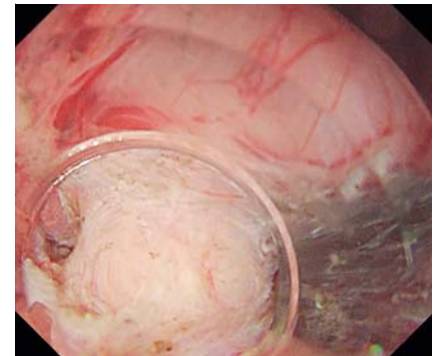


Endoscopic submucosal dissection (ESD) of ampullary lesions is an alternative to endoscopic papillectomy [1], which has several drawbacks such as a significant perforation rate, bleeding, and a low curative resection rate [2–4]. ESD may overcome these drawbacks, except for the risk of perforation. The sphincter of Oddi often cannot be distinguished from the duodenal muscularis. We report a novel technique using miniprobe ultrasonography to identify the sphincter of Oddi, which facilitates appropriate dissection just above the muscularis propria. A 51-year-old woman was found to have an ampullary lesion (>2 cm) during screening esophagogastroduodenoscopy (► **Fig. 1**). Biopsy showed a high grade adenoma. Endoscopic ultrasonography revealed no findings suspicious for deep invasion. ESD was therefore attempted aiming to remove the lesion with negative margins (► **Video 1**).

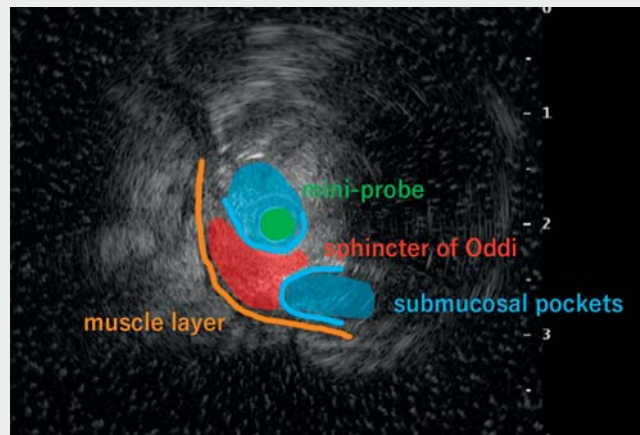
A therapeutic endoscope (H-290T; Olympus, Tokyo, Japan) was used for the procedure and, after submucosal injection, an initial mucosal incision (approximately 15-mm long) was made 10 mm from the proximal side of the tumor using a needle-type knife (FlushKnife BT-S; 1.5 mm; Fujifilm, Tokyo, Japan). Submucosal pockets were created on both lateral sides of the ampulla (► **Fig. 2**). A miniprobe was inserted into the left-sided submucosal pocket. Ultrasonography clearly depicted the sphincter of Oddi and duodenal muscularis, and an appropriate dissection line was identified (► **Fig. 3**). The sphincter of Oddi was dissected from the muscularis using a scissor-type knife (SB Knife Jr. 2; SB KAWASUMI, Kanagawa, Japan) with Endocut I mode (VIO3; effect 1, duration 4, interval 1) to minimize thermal damage to the pancreaticobiliary ducts (► **Fig. 4**). The remaining area was dissected and an en bloc resection was achieved. A duodenoscope was then used during placement of



► **Fig. 1** White-light endoscopic view of an ampullary tumor larger than 2 cm.



► **Fig. 2** Endoscopic view showing the sphincter of Oddi, which was identified after creating submucosal pockets on both lateral sides of the ampulla.



► **Video 1** Endoscopic submucosal dissection of an ampullary duodenal lesion is performed with microprobe ultrasound guidance.



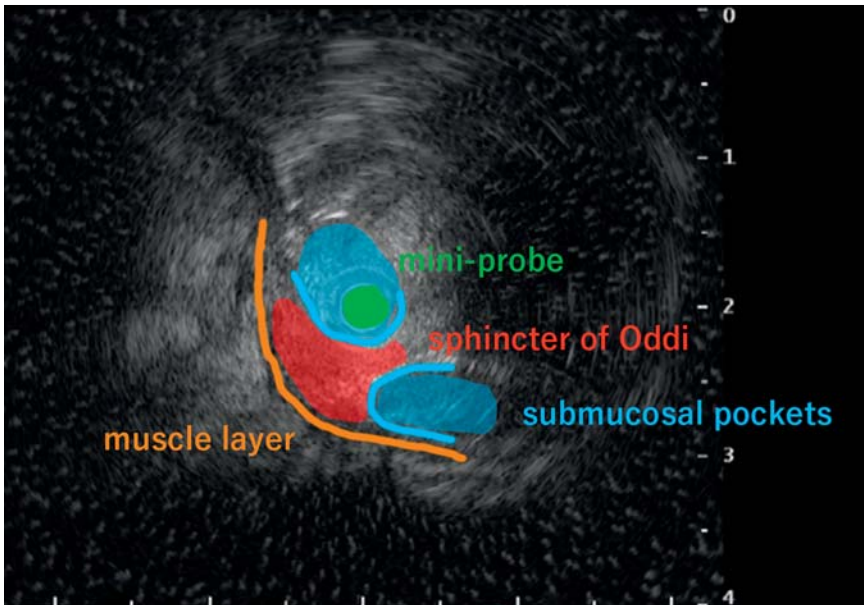
bile and pancreatic duct stents, and the mucosal defect was closed using endoclips (► **Fig. 5**). There were no adverse events. The pathologic diagnosis was a high grade adenoma with a negative cut margin.

Submucosal ultrasonography in the pocket was useful to identify the appropriate dissection line and avoid perforation.

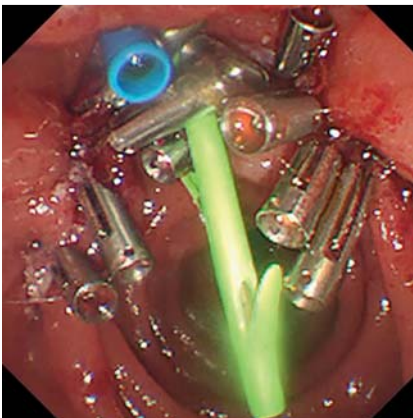
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Competing Interest

The authors declare that they have no conflict of interest.



► **Fig. 3** Miniprobe ultrasonography enabled differentiation of the sphincter of Oddi from the duodenal muscularis, and an appropriate dissection line was identified.



► **Fig. 5** Endoscopic image of the final appearance after placement of biliary and pancreatic stents and prophylactic closure of the mucosal defect using endoclips.

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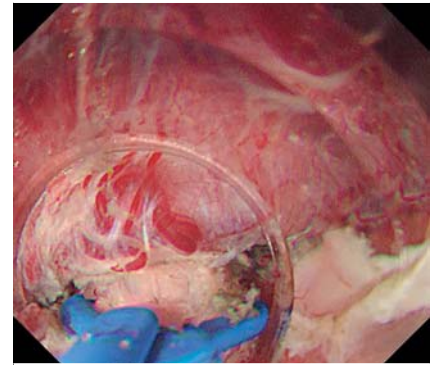
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► **Fig. 4** Endoscopic view during dissection of the sphincter of Oddi using a scissor-type knife.

Bibliography

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