





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

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Abstract

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References

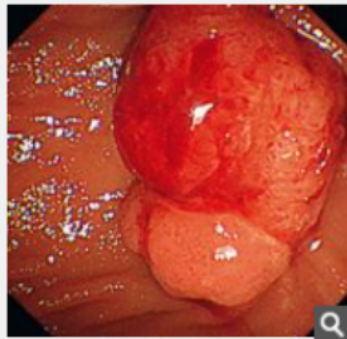
Figures

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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] [3] [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.

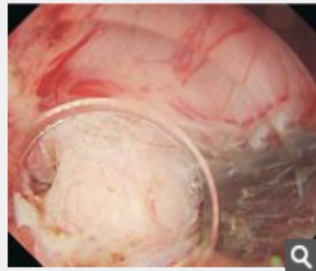
A 51-year-old woman was found to have an ampullary lesion (>2cm) during screening esophagogastroduodenoscopy ([Fig.1]). Biopsy showed a high grade adenoma. Endoscopic ultrasonography revealed no findings suspicious for deep invasion. ESD was therefore attempted aiming to remove the lesion with negative margins ([Video1]).



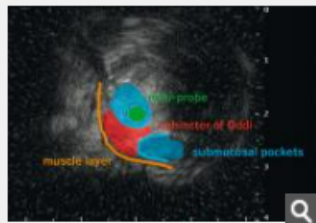
*Fig.1* White-light endoscopic view of an ampullary tumor larger than 2 cm.

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

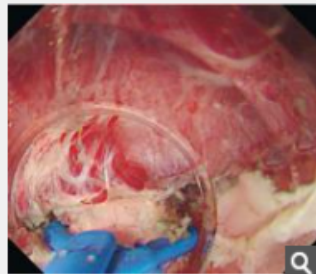
A therapeutic endoscope (H-290T; Olympus, Tokyo, Japan) was used for the procedure and, after submucosal injection, an initial mucosal incision (approximately 15-mm long) was made 10mm from the proximal side of the tumor using a needle-type knife (FlushKnife BT-S; 1.5mm; Fujifilm, Tokyo, Japan). Submucosal 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 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.



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



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



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