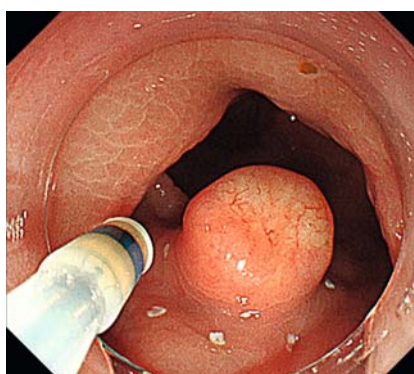


A neuroendocrine tumor improper for ligation with suction was resected en bloc by underwater endoscopic submucosal dissection

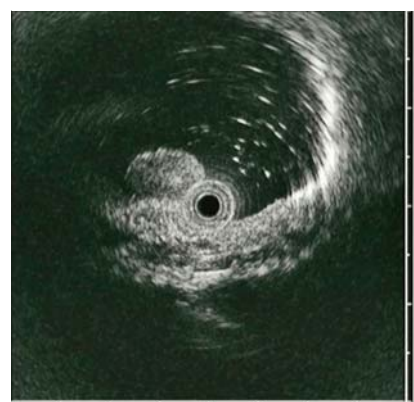


For rectal neuroendocrine tumors (NETs) smaller than 10 mm, a meta-analysis indicated that endoscopic mucosal resection with suction, such as using a cap-fitted endoscope or ligating device, had a higher complete resection rate and significantly shorter procedure time compared to endoscopic submucosal dissection (ESD) [1]. In contrast, for NETs 10 to 14 mm in diameter that are improper for ligation with suction, ESD is feasible, although the treatment strategy has been controversial [2]. Herein, we report a case of a rectal NET that was successfully resected by underwater ESD (U-ESD) within a short time.

A man in his seventies underwent colonoscopy and was determined to have a slightly depressed submucosal tumor 10 mm in size in his lower rectum (► Fig. 1). The tumor was diagnosed as a NET histologically by biopsy. Endoscopic ultrasonography suggested the lesion was confined to the submucosa (► Fig. 2). Because suction was difficult due to the size of the lesion, the surgeon decided to resect it with U-ESD. The tumor was dissected in a layer just above the muscle layer and resected en bloc (► Fig. 3, ► Fig. 4; ► Video 1). The time for resection lasted 8 minutes. The wound was completely closed with clips. Histological findings showed a NET G1 according to the World Health Organization classification with a negative margin (► Fig. 5). There was no evidence of vascular invasion. U-ESD enables submucosal dissection utilizing a floating effect in a magnified view [3]. In this case, the advantages of underwater conditions made it easy to proceed with the dissection at a depth just above the muscle layer, facilitating vertical margin negative excision. In conclusion, for lesions larger than approximately 10 mm, U-ESD can be a useful option for en bloc resection



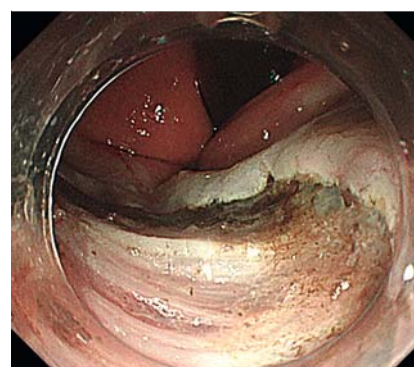
► Fig. 1 White light image before resection indicates a 10-mm yellowish, slightly depressed submucosal tumor located 2 cm from the anal verge in the lower rectum.



► Fig. 2 Endoscopic ultrasonography revealed the lesion was in the submucosa.



► Fig. 3 Submucosal dissection using a DualKnife J (KD-655Q; Olympus, Tokyo, Japan) just above the muscle layer was possible due to the floating effect in a magnified clear view in underwater conditions.



► Fig. 4 The tumor was resected in a layer just above the muscle layer.

within a time that is comparable to endoscopic mucosal resection with suction.

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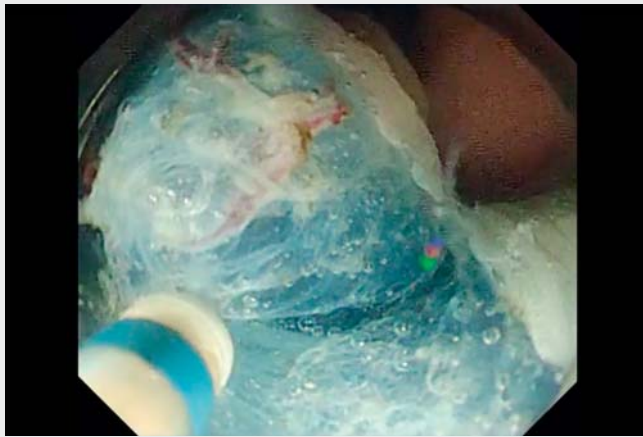
Competing interests

The authors declare that they have no conflict of interest.

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Video 1 Underwater endoscopic submucosal dissection for a neuroendocrine tumor in the lower rectum.

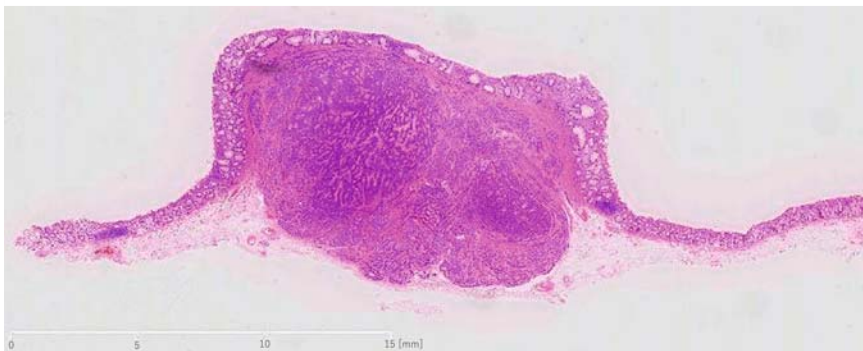


Fig. 5 Histological findings of the tumor. The tumor was diagnosed as a neuroendocrine tumor G1 according to the World Health Organization classification, with a negative margin (hematoxylin-eosin staining).

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