

## Flat-based over-the-scope clip-assisted endoscopic full-thickness resection of a duodenal neuroendocrine tumour: a safe alternative to endoscopic submucosal dissection

Endoscopic submucosal dissection (ESD) results in higher numbers of complications when used in the duodenum compared with other locations owing to a variety of factors [1]. Here, we demonstrate endoscopic full-thickness resection (EFTR) using the Padlock clip defect closure system as an alternative technique for en bloc resection of a duodenal neuroendocrine tumor (NET) of <1.5 cm. Most of the previous literature has reported the use of the Ovesco over-the-scope clip system or the new full-thickness resection device for resection of NETs within the duodenum [2–4]. To the best of our knowledge, this is the first case to be reported in which the padlock system was used for EFTR of a NET >10 mm in size.

A 56-year-old man presented with mild upper abdominal pain for 6 months. An upper gastrointestinal endoscopy showed a 1.5-cm subepithelial lesion in the duodenal bulb (►Fig. 1). Narrow-band imaging (NBI) showed a normal mucosal pattern. Endoscopic ultrasound (EUS) examination showed a homogeneous hypoechoic mass of 1.2×0.6 cm arising from layer 3, suggestive of a NET (►Fig. 2). We decided to perform EFTR of the mass. The lesion edges were marked with argon plasma coagulation (APC). Subsequently, the Padlock over-the-scope clip system (16-mm diameter) was accurately deployed at the base of the lesion, after it had been totally suctioned into the cap (►Fig. 3; ►Video 1). A 20-mm polypectomy snare was then used to grasp and resect the lesion at its base, just above the Padlock clip. The cut surface was observed, with the Padlock clip in situ, and the cut edges were free of any macroscopically visible tumor tissue, with no evidence of bleeding. The patient was kept in hospital for overnight observation and was discharged the next day on a normal diet. Histopathology subse-



►Fig. 1 Upper gastrointestinal endoscopy image showing a 1.5-cm subepithelial lesion in the posterior wall of the duodenal bulb.



►Fig. 2 Linear endoscopic ultrasound image shows a homogeneous hypoechoic mass arising from layer 3, with features suggestive of a neuroendocrine tumor.



►Fig. 3 Photograph of the Padlock clip system loaded onto the endoscope, with its unique clip design of six vertical prongs, and the delivery system, which has a “push of the thumb” release mechanism, allowing one handed operation, so making deployment easy. In addition, the delivery system is fully loaded on the outside of the endoscope, so leaving the instrument channel completely free for use during the procedure.

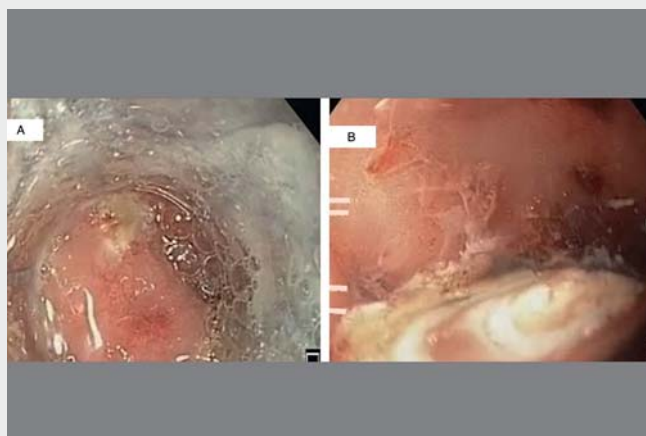
quently showed a well differentiated NET with uninvolved margins (►Fig. 4).

EFTR can be a safe, less cumbersome, and less time-consuming alternative to ESD for subepithelial lesions in the duodenum. It can be safely performed in centers with less experience in duodenal ESD.

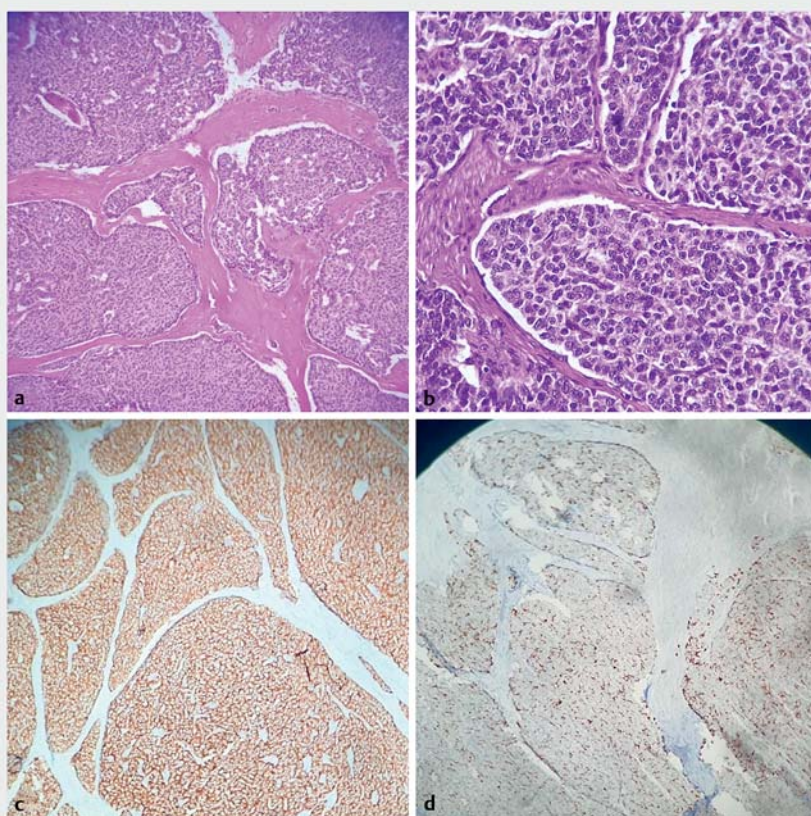
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### Competing interests

The authors declare that they have no conflict of interest.



**Video 1** Video demonstrating accurate delineation of a duodenal neuroendocrine tumor and use of the Padlock clip defect closure system for endoscopic full-thickness resection of the lesion.



**Fig. 4** Histopathology images showing: **a, b** a well differentiated neuroendocrine tumor with uninvolved margin, suggestive of an R0 resection; **c** immunohistochemical staining with positivity for chromogranin and synaptophysin; **d** a Ki67 index of 1%, suggestive of favorable histology.

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## CORRECTION

### **Flat-based over-the-scope clip-assisted endoscopic full-thickness resection of a duodenal neuroendocrine tumour: a safe alternative to endoscopic submucosal dissection**

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In the above-mentioned article, the title has been corrected. Correct is:

Flat-based over-the-scope clip-assisted endoscopic full-thickness resection of a duodenal neuroendocrine tumour: a safe alternative to endoscopic submucosal dissection. This was corrected in the online version on April 14, 2022.