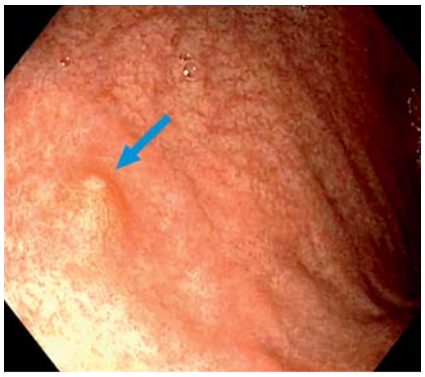
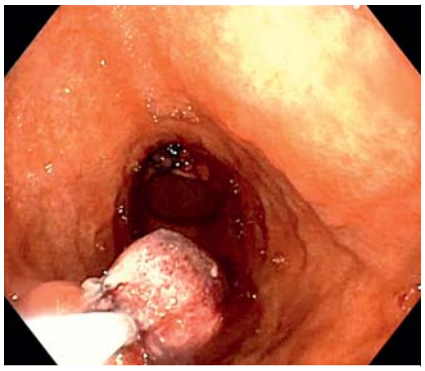
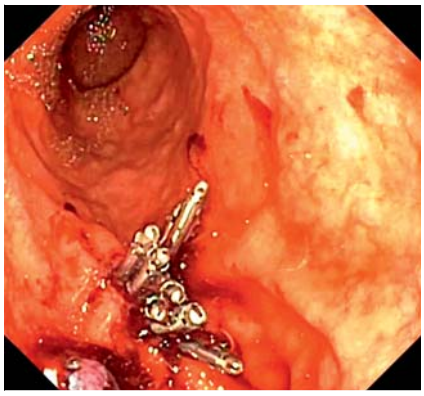
Gastric perforation during ligation-assisted endoscopic mucosal resection of a neuroendocrine tumor: banding without resection may be a safer option



▶ **Fig. 1** Endoscopic view of one (arrow) of the three neuroendocrine tumors.



▶ **Fig. 2** Neuroendocrine tumor resection with electrocautery snare after band ligation.



▶ **Fig. 3** Wall defect closure by endoscopic clipping.

▶ **Fig. 4** Remaining clip in the fibrous scar of the first resected neuroendocrine tumor.

The management of small gastrointestinal subepithelial tumors (SETs) considers periodic endoscopic surveillance vs. endoscopic removal for entities with malignant potential such as neuroendocrine tumor (NET), gastrointestinal stromal tumor or others [1]. Excision by ligation-assisted endoscopic mucosal resection (EMR) is an option for small SETs [2].

In a 57-year-old woman undergoing periodic endoscopic surveillance for chronic atrophic gastritis, three small grade 2 (Ki-67, 3 %) NETs were identified in the gastric body (▶ **Fig. 1**). Indication for endoscopic excision was agreed by consensus in a multidisciplinary committee. EMR using a specific mucosectomy device (Captivator; Boston Scientific, Quincy, Massachusetts, USA) was proposed.

During NET banding, two technical incidents occurred: 1) the transparent cap of the device was not optimally attached to the tip of the gastroscope (the blue rubber bands should not be observed in the endoscopic view); and 2) two bands, instead of one, were deployed when the first NET was ligated. During resection of the first NET using an electrocautery snare (ERBE, 40 W cut, 30 W coagulation; ERBE Elektromedizin GmbH, Tübingen, Germany), immediate gastric perforation occurred (▶ **Fig. 2**). The wall defect was effectively closed during the same procedure by endoscopic clipping using eight clips (Resolution clip; Boston Scientific) (▶ **Fig. 3**). Endoscopic band ligation (EBL) without resection was decided for the other two NETs, avoiding the resection technique.

The patient did well after the procedure, requiring a 7-day hospital stay. Endoscopic surveillance after 10 months and 2 years showed a fibrous scar and one remaining clip from the first resected NET (pathological biopsy examination confirmed fibrous tissue) (▶ **Fig. 4**), and the disappearance of the other two NETs (▶ **Video 1**).

Ligation-assisted EMR is associated with a non-negligible rate of adverse events such as perforation [2, 3]. EBL without resection is an apparently safe and effective option for management of small SETs [4, 5].

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Competing interests

Joan B Gornals is a consultant for Boston Scientific.

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Video 1 Intraprocedure adverse event during ligation-assisted endoscopic mucosal resection: gastric perforation.

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