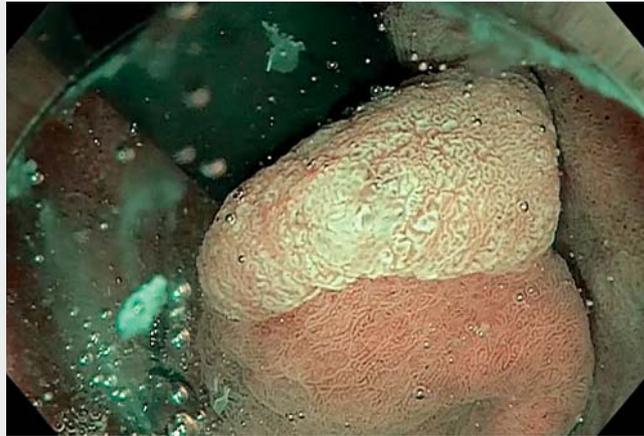


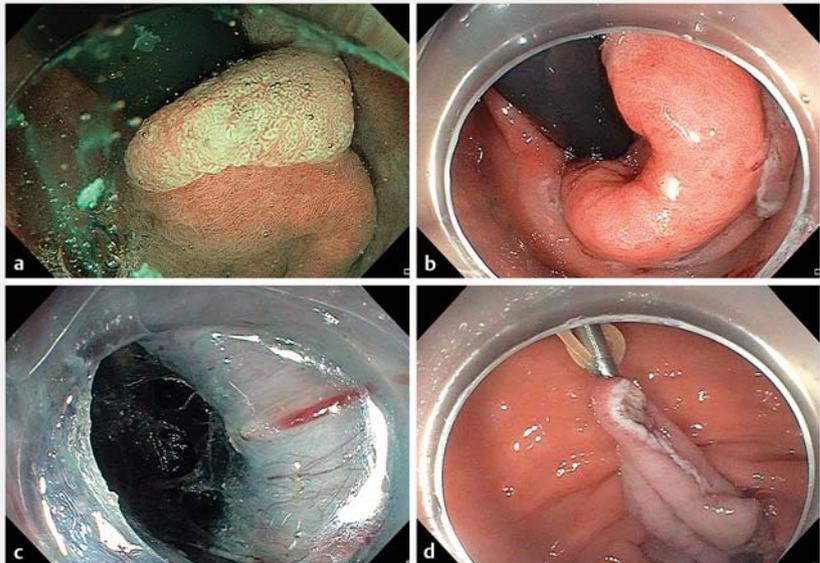
Retroflexion in the duodenal bulb combined with tunnel and double-clip traction: the key to successful endoscopic submucosal dissection of a malignant gastric adenoma protruding through the pylorus

An 81-year-old man was referred for resection of a prepyloric lesion, described as a large pseudopolypoid gastric fold, with low grade dysplasia adenoma on biopsies. Examination showed a flat, centrally depressed lesion without ulceration, protruding completely through the pylorus (▶ **Video 1**). The distal side of the lesion could not be assessed in forward view, despite the use of a transparent cap. A careful retroflexion in the bulb, with underwater examination (gastroscope GIF-H190; Olympus, Tokyo, Japan), allowed perfect visualization of the distal margin (▶ **Fig. 1 a**). After submucosal injection of glycerol solution with indigo carmine, distal incision was carefully made in retroflexion in the duodenum, with a DualKnife J 1.5 mm (Olympus) (▶ **Fig. 1 b**). Then, we proceeded to the proximal incision and submucosal dissection in a tunnel with visualization of the pylorus muscle arch (▶ **Fig. 1 c**). Counter-traction was applied with two clips (Resolution 360°; Boston Scientific, Marlborough, Massachusetts, USA) and rubber band to expose the posterior edges (▶ **Fig. 1 d**). During the procedure, the axis of the counter-traction was modified to allow good exposure of the superior and anterior parts of the lesion. En bloc resection was achieved (▶ **Fig. 2 a**). Histological examination confirmed complete resection of intestinal-type pyloric adenoma with intramucosal adenocarcinoma (▶ **Fig. 2 b**).

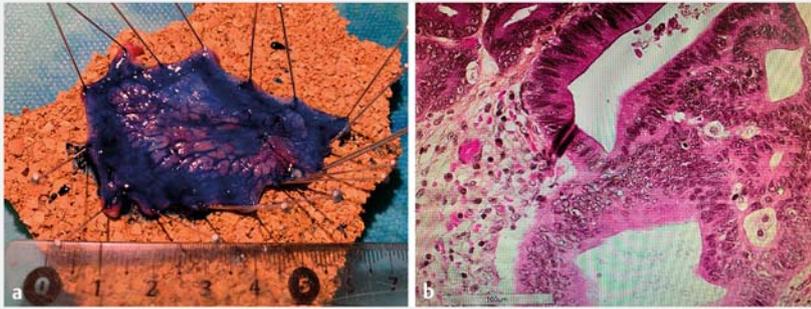
Retroflexion can be useful for endoscopic submucosal dissection (ESD) and is widely used in the stomach, rectum, and colon. Although retroflexion can be considered tricky and risky in the duodenum, it was the only way to ensure correct management of the distal edge of this lesion. To our knowledge, duodenal retroflexion to achieve ESD of pyloric lesions has been studied in only two case series, with no complications reported [1, 2], and seems



▶ **Video 1** Retroflexion in the duodenal bulb combined with tunnel and double-clip traction: the key to a successful endoscopic submucosal dissection of a gastric adenoma protruding through the pylorus.



▶ **Fig. 1** Endoscopic submucosal dissection procedure with combined strategy: retroflexed incision, tunnel through the pylorus, and clip-traction assistance. **a** Distal evaluation of the lesion in duodenal bulb retroflexion. **b** Distal incision of the tunnel in retroflexion. **c** Tunnel dissection with pyloric arch visible in the tunnel. **d** Double-clip and rubber-band counter-traction.



► **Fig. 2** Resected specimen and histology result. **a** Specimen. **b** Histological aspect of the intramucosal adenocarcinoma on pyloric adenoma (hematoxylin and eosin stain).

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to increase en bloc resection rates. Combining retroflexion with the easy-to-use and changeable counter-traction with double clips and rubber band [3] could make the resection of these challenging lesions feasible.

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Competing interests

The authors declare that they have no conflict of interest.

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