

Gastric neuroendocrine tumors display deep invasive features, with amorphous pit and irregular vascular pattern, using narrow-band imaging and magnification

To the best of our knowledge, gastric neuroendocrine tumors are rare, usually diagnosed with endoscopic ultrasound [1], and their endoscopic aspect has rarely been described in the literature [2].

We present the case of a 71-year-old man who was referred for endoscopic submucosal dissection (ESD) of a gastric neuroendocrine tumor, 2 cm in size and without secondary lesions. The patient had previously been diagnosed with Biermer disease with gastric atrophy, and refused surgery for the tumor.

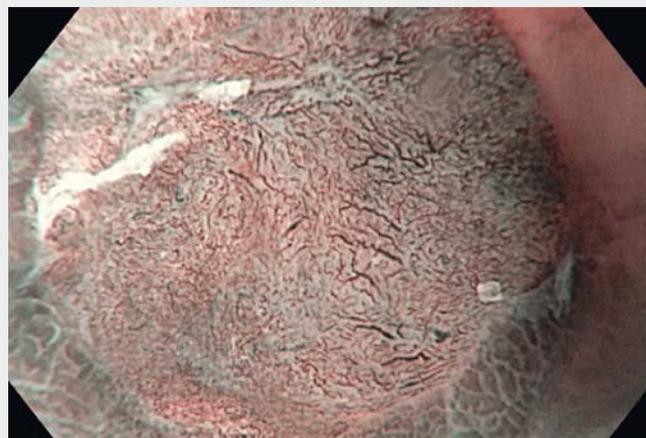
Gastroscopy showed a 2-cm nodular submucosal lesion, with ulceration to the top and lateral aspect, in the anterior part of the fundus (► **Fig. 1 a, c**). Within the ulcerated zone, a clearly demarcated area appeared. Initially, this area was covered with a thick mucus cap, which was easily washed using a peristaltic pump.

Narrow-band imaging with dual focus magnification showed absence of pit pattern and presence of large amorphous areas, as described by Kudo as a Vn pit pattern [3]. The vascular pattern was composed of high-density straight and “spark-like” capillary vessels, without any avascular areas. This vascular pattern was clearly irregular, as described by Sano’s classification as a type 3a pattern (► **Fig. 1 b, d**) [4].

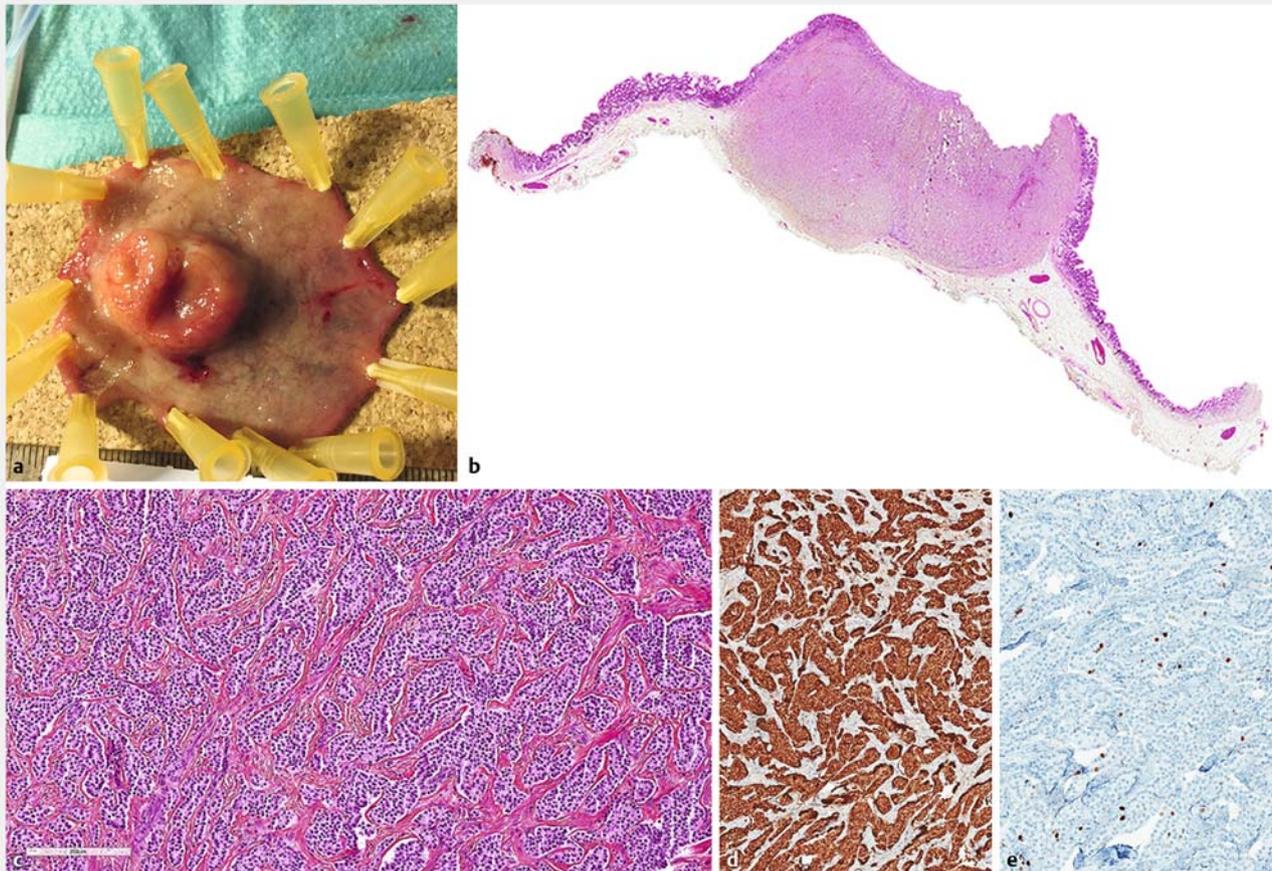
We performed ESD with large safety margins, without any adverse events (► **Video 1**). Pathological examination (► **Fig. 2**) showed a 5.5-cm specimen containing a nodular lesion of 2.7 cm, with safe margins. A grade 1 neuroendocrine tumor was diagnosed. The multidisciplinary team considered the resection to be curative; only follow-up with computed tomography scan to assess for lymph node involvement was indicated.



► **Fig. 1** Endoscopic aspect of gastric neuroendocrine tumor. **a** Submucosal nodular aspect with two ulcerations. **b** Narrow-band imaging (NBI) aspect before removing the mucus cap. **c** White-light aspect after removing the cap, revealing red vessels. **d** NBI aspect with amorphous mucosal pattern and irregular “spark-like” capillary vessels (arrow).



► **Video 1** Endoscopic aspect and endoscopic submucosal dissection of a grade 1 gastric neuroendocrine tumor.



► **Fig. 2** Pathology examination. **a** Endoscopic submucosal dissection specimen. **b** Macroscopic pathology examination. **c** Hematoxylin and eosin stain ($\times 12$ magnification). **d** Immunohistochemistry chromogranin A ($\times 12$ magnification). **e** Immunohistochemistry Ki 67 ($\times 12$ magnification).

This case illustrates the specific endoscopic aspect of gastric neuroendocrine tumors when ulcerated, and the ability to cure such tumors safely with ESD without always having to use full-thickness resection devices [5].

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Competing interests

None

The authors

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