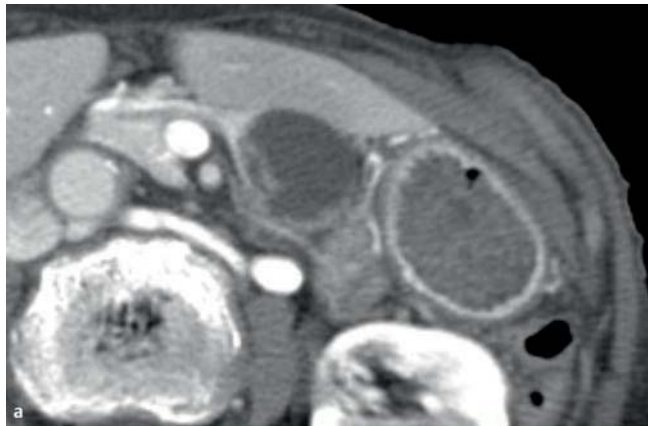
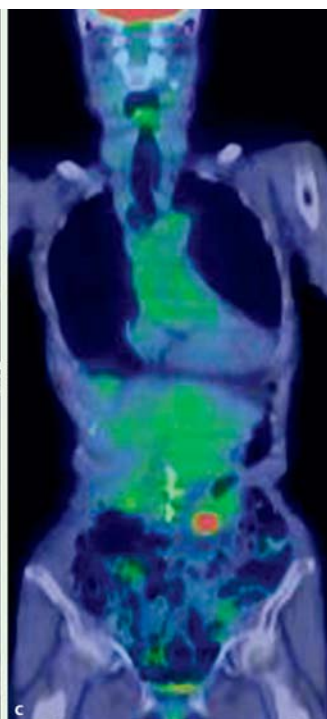
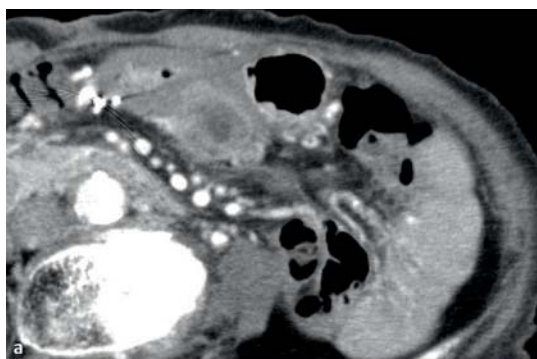


## A case of curatively resected gastric wall implantation of pancreatic cancer caused by endoscopic ultrasound-guided fine-needle aspiration



**Fig. 1** Images prior to distal pancreatectomy. **a** Contrast-enhanced computed tomography. **b** Endoscopic ultrasound.



**Fig. 2** Images at detection of gastric metastasis. **a** Contrast-enhanced computed tomography. **b** Endoscopic ultrasound. **c** Positron emission tomography prior to partial gastrectomy.

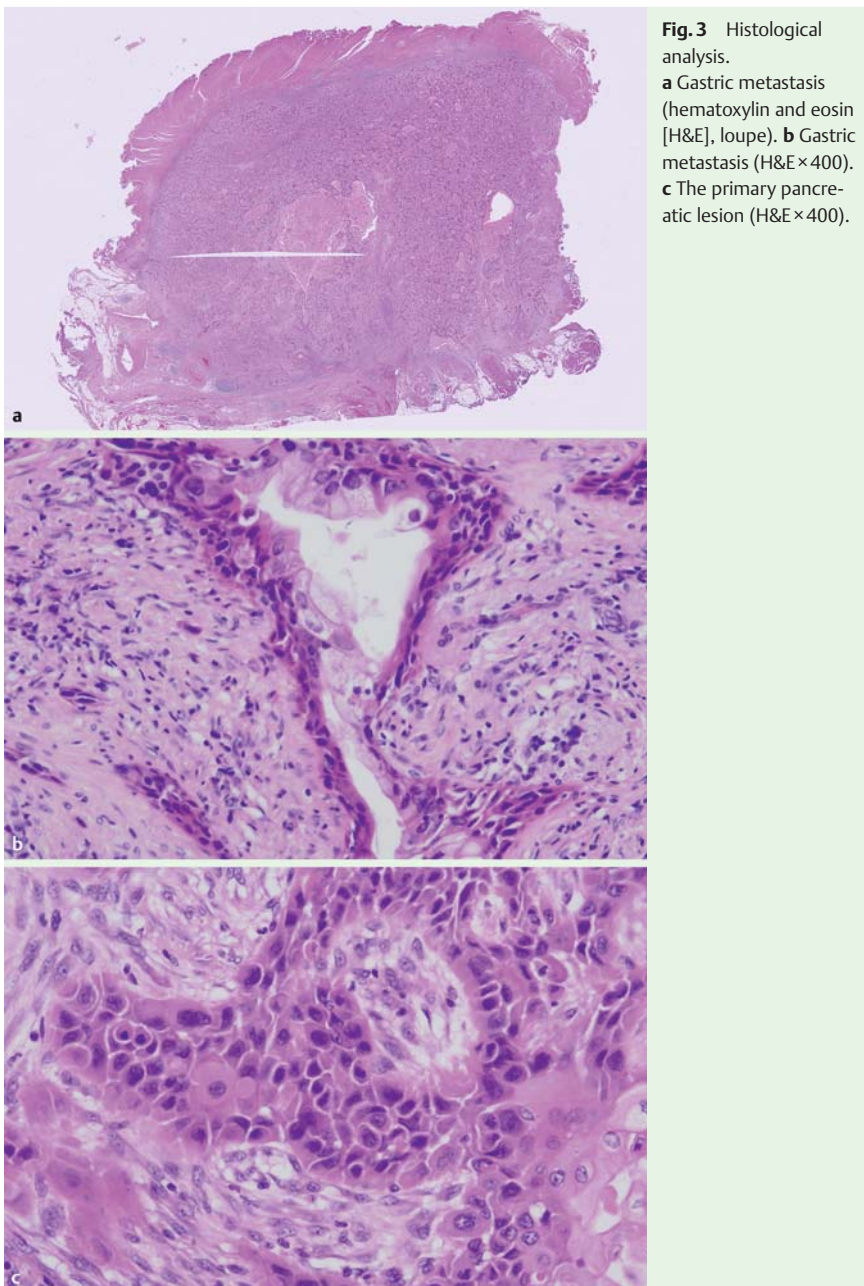
An 87-year-old woman with a pancreatic mass was referred to our hospital for treatment. Contrast-enhanced computed tomography (CT) revealed a 25-mm-diameter mass with cystic changes in the body of the pancreas (● Fig. 1a). Endoscopic ultrasound-guided fine-needle aspiration (EUS-FNA) was performed using a 22-gauge needle (● Fig. 1b), and cytohistological examination revealed a squamous cell carcinoma. Accordingly, distal pancreatectomy was performed, and the lesion was diagnosed as an adenosquamous carcinoma of the pancreas with T2N0M0 classification. The patient rejected adjuvant chemotherapy but consented to routine blood tests and contrast-enhanced CT every 3 months to monitor for recurrence.

At 19 months after surgery, the tumor marker CA19-9 level had increased within the normal range. A contrast-enhanced CT showed a 20-mm-diameter mass with cystic changes and features similar to those of the resected pancreatic mass in the posterior stomach wall, despite the absence of other metastatic lesions (● Fig. 2a). A second EUS-FNA was performed (● Fig. 2b) and the lesion was identified as another squamous cell carcinoma. Positron emission tomography showed no other metastases (● Fig. 2c), and the patient underwent partial gastrectomy. The lesion was diagnosed definitively as a needle-track implantation caused by EUS-FNA, as it arose from the gastric wall subserosa (● Fig. 3a) and its histology was identical to that of the squamous cell carcinoma within the primary pancreatic carcinoma (● Fig. 3b,c). No recurrence was observed for 16 months.

To our knowledge, this is the first report of a gastric wall metastasis of pancreatic cancer caused by EUS-FNA with pathological proof of needle-track implantation. Although such a mechanism of metastasis is rare [1–4], it seems mandatory that implantation is detected before metastases occur in order to ensure radical cure. Therefore, planned examinations and cautious interpretation of blood tests and images may be essential, even following curative resection of early-stage pancreatic cancer.

Endoscopy\_UCTN\_Code\_CPL\_1AL\_2AD

**Competing interests:** None



**Fig. 3** Histological analysis.  
**a** Gastric metastasis (hematoxylin and eosin [H&E], loupe). **b** Gastric metastasis (H&E×400). **c** The primary pancreatic lesion (H&E×400).

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