

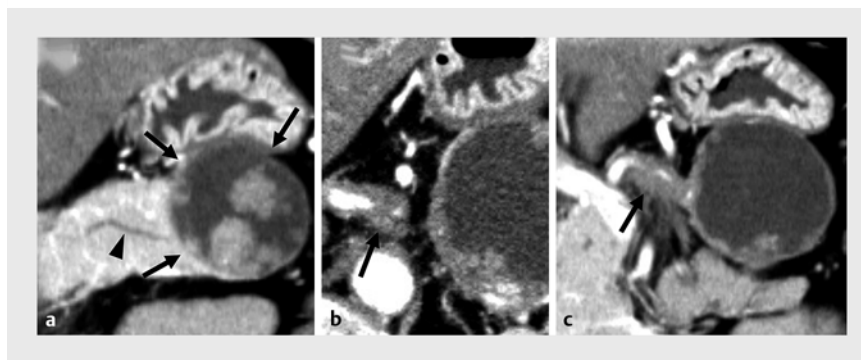
Endoscopic ultrasound-guided fine-needle aspiration of periarterial tumor extension from mucinous cystic carcinoma



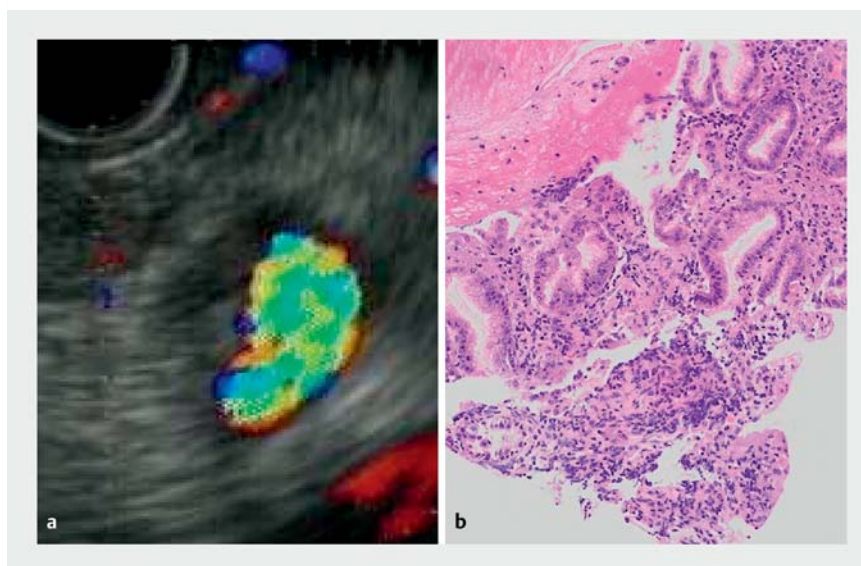
A 57-year-old woman with abdominal pain was admitted to our hospital for close examination. The imaging studies revealed a cystic tumor in the pancreatic tail. The cystic mass, 6 cm in size, was accompanied by internal mural nodules (► **Fig. 1 a**), and periarterial tumor extension from the splenic artery to the celiac and common hepatic arteries with encasement (► **Fig. 1 b, c**). Endoscopic ultrasound-guided fine-needle aspiration (EUS-FNA) of cystic tumors is a safe technique [1]. However, there are still some concerns about peritoneal dissemination after EUS-FNA of cystic masses [2]. In this context, we decided to perform EUS-FNA of the periarterial tumor extension around the splenic artery (► **Fig. 2 a**, ► **Video 1**) instead of puncturing the cystic mass.

EUS showed that the cyst wall was covered with an irregular 5-mm-thick capsule with internal mural nodules as high as 30 mm. The mural nodules in the mucinous cystic carcinoma were enhanced by an ultrasound contrast agent (Sonazoid; GE Healthcare, Waukesha, Wisconsin, USA). We performed EUS-FNA of the 2.5-mm-thick hypoechoic periarterial tumor extension around the splenic artery by puncturing twice with 20 strokes under negative pressure of 20 mL using a 25-gauge nitinol needle (EZ Shot 3 Plus; Olympus, Tokyo, Japan). The cytology and histology showed Class V and adenocarcinoma (► **Fig. 2 b**), respectively, which, together with imaging, led us to comprehensively diagnose the cyst as mucinous cystic adenocarcinoma.

Although puncturing a periarterial tumor extension carries the risk of vascular mispuncture, the procedure has been reported to be safe and useful [3,4], and should be considered an option in order to avoid procedure-related dissemination.



► **Fig. 1** Computed tomography images of the patient with mucinous cystic carcinoma. A cystic mass sized 6 cm with a clear border was seen in the pancreatic tail. **a** Mural nodules inside the cystic mass (arrows) without dilation of the main pancreatic duct (arrowhead). **b, c** Axial (**b**) and coronal (**c**) images showing continuous tumor extension from the mural nodules within the cyst to the periarterial area (arrows).



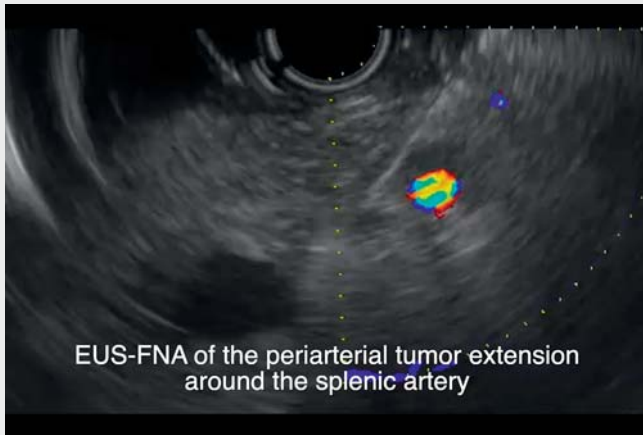
► **Fig. 2** Endoscopic ultrasound-guided fine-needle aspiration (EUS-FNA) of the periarterial tumor extension around the splenic artery. **a** Hypoechoic lesions of the periarterial tumor extension around the splenic artery with a Doppler image. **b** A pathological image of the periarterial tumor extension around the splenic artery acquired by EUS-FNA puncture.

Endoscopy_UCTN_Code_TTT_1AS_2AF

Acknowledgments

We thank all our colleagues, Hiroko Shindo, Ei Takahashi, Hiroshi Hayakawa, Natsuhiko Kuratomi, Makoto Kadokura, Dai Yoshi-

mura, Naoto Imagawa, and Tetsuya Okuwaki, for their contribution in providing clinical and secretarial assistance. The authors would like to thank Enago (www.enago.jp) for the English language review.




Video 1 Endoscopic ultrasound-guided fine-needle aspiration of the periarterial tumor extension around the splenic artery from a mucinous cystic carcinoma (MCC). Mural nodules in the MCC were enhanced by an ultrasound contrast agent (Sonazoid; GE Healthcare, Waukesha, Wisconsin, USA).

Competing interests

The authors declare that they have no conflict of interest.

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Endoscopy 2023; 55: E678–E679

DOI 10.1055/a-2032-3747

ISSN 0013-726X

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