

Endoscopic drainage using a lumen-apposing metal stent under contrast-enhanced harmonic endoscopic ultrasonography guidance

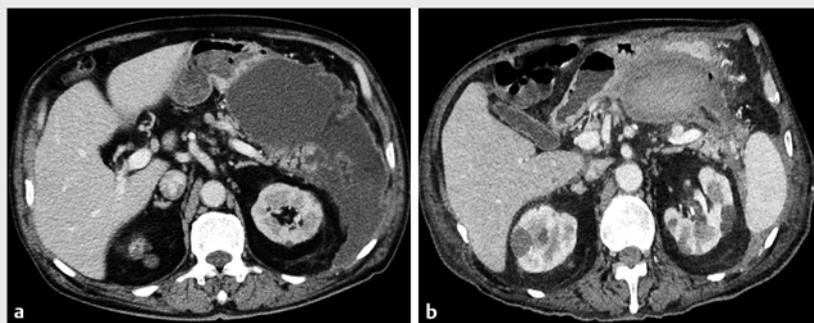
Endoscopic ultrasonography-guided transmural drainage (EUS-TMD) is an effective treatment for collections of infected peripancreatic fluid [1]. A novel one-step device consisting of a combined lumen-apposing metal stent (LAMS) and an electrocautery-enhanced

delivery system (Hot AXIOS; Boston Scientific, Marlborough, Massachusetts, USA) was recently developed [2,3]. The stent flange interval is 10-mm long; therefore, the recommended indication for this stent is a fluid collection with a wall of <10 mm. Evaluating the precise

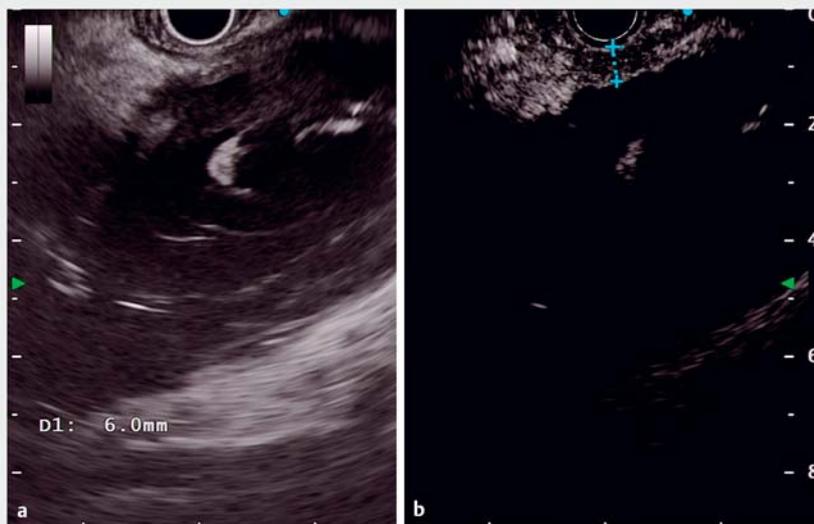
thickness of the cavity wall before this procedure is crucial, and a LAMS should not be used if the operator cannot be certain. Here, we report a case of successful drainage of an infected hematoma using the Hot AXIOS under contrast-enhanced harmonic endoscopic ultrasonography (CH-EUS) guidance.

A 70-year-old man was diagnosed with infected walled-off necrosis (WON) caused by acute necrotizing pancreatitis (► Fig. 1 a). The infection was uncontrolled, even after multiple percutaneous and endoscopic drainage procedures. A step-up surgical necrosectomy [4] was performed and the infection was controlled temporarily; however, a newly formed blood vessel ruptured and the cavity where the WON had previously existed was filled with blood. Although the bleeding was controlled by vascular embolization, re-infection occurred 20 days after the procedure (► Fig. 1 b).

We decided to perform EUS-TMD for the infected hematoma using the Hot AXIOS. However, the lesion contained a large number of blood clots and the wall thickness could not be precisely determined using only B-mode EUS imaging (► Fig. 2 a). Therefore, we scanned the lesion with CH-EUS. Immediately after injecting a sonographic contrast agent, the contents



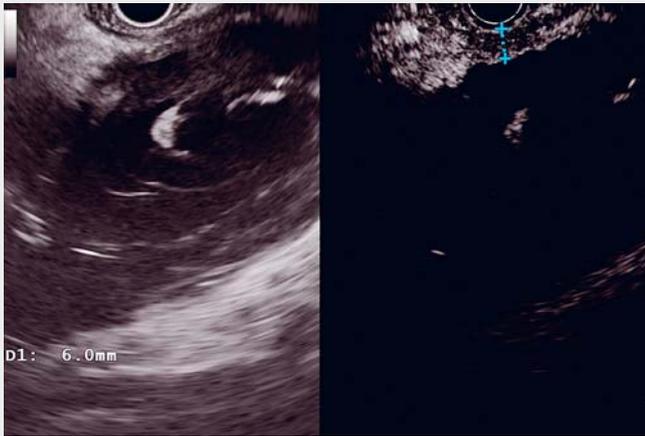
► **Fig. 1** Computed tomography scan showing: **a** an area of infected walled-off necrosis caused by acute necrotizing pancreatitis; **b** an infected hematoma in the cavity of the previous walled-off necrosis, which was found 20 days after embolization to control bleeding from a ruptured newly formed blood vessel, which had filled the cavity with blood after surgical necrosectomy.



► **Fig. 2** Endoscopic ultrasonography images of the infected hematoma showing: **a** on B-mode, a large number of blood clots that made it impossible to precisely determine the wall thickness; **b** after injection of sonographic contrast agent, the clearly defined cavity wall, allowing accurate measurement.



► **Fig. 3** Computed tomography scan after successful transgastric endoscopic ultrasound-guided infected hematoma drainage using a lumen-apposing metal stent.



▶ Video 1 Endoscopic ultrasonography-guided transluminal drainage of an infected hematoma using a lumen-apposing metal stent under contrast-enhanced harmonic endoscopic ultrasonography guidance.

were clearly identified as an avascular area, and the cavity wall was accurately detected (**▶ Fig. 2b**). Subsequently, we punctured the lesion safely, which enabled proper deployment of the LAMS (**▶ Fig. 3; ▶ Video 1**).

These findings indicate that CH-EUS could be a useful modality to clearly visualize target lesions in cases where the cavity wall cannot be precisely evaluated for standard EUS-TMD.

Endoscopy_UCTN_Code_TTT_1AS_2AC

Competing interests

None

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DOI <https://doi.org/10.1055/a-0875-3546>

Published online: 12.4.2019

Endoscopy 2019; 51: E187–E188

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Stuttgart · New York

ISSN 0013-726X

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