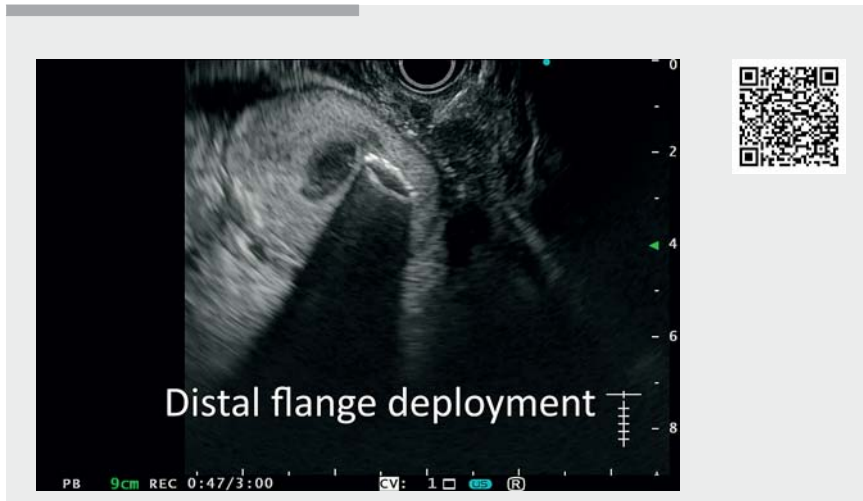
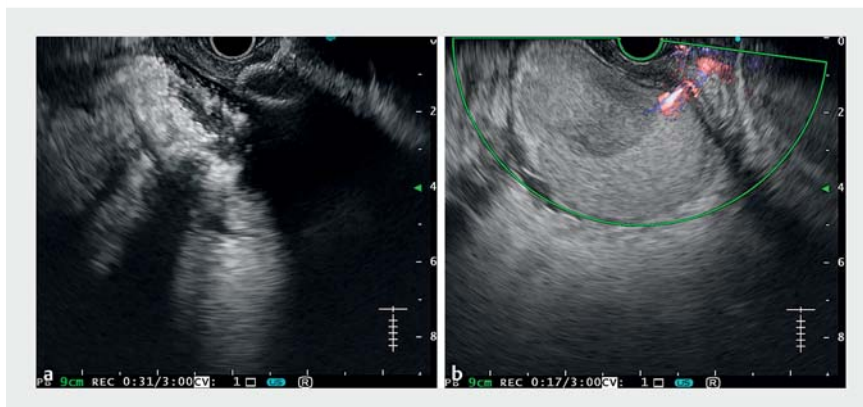


Failed endoscopic ultrasound-guided gallbladder drainage due to severe bleeding immediately rescued by redo-drainage under contrast-harmonic guidance



▶ **Video 1** Deployment of the distal flange of the second 8-mm lumen-apposing metal stent (LAMS) in a gallbladder lumen completely filled with fresh blood (hyperechoic material).



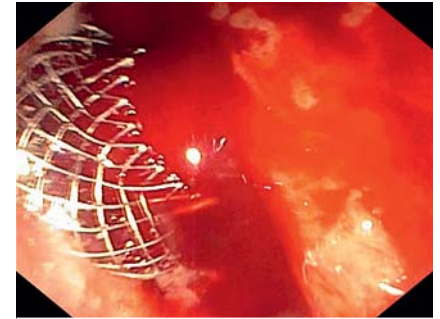
▶ **Fig. 1** Endoscopic ultrasound views. **a** Misdeployment of the lumen-apposing metal stent distal flange outside the gallbladder wall. **b** The gallbladder wall arteriole on color Doppler image after removal of the misdeployed stent.

Endoscopic ultrasound-guided gallbladder drainage (EUS-GBD) was first described in 2007 [1] and is considered the treatment of choice for acute cholecystitis in patients unsuitable for surgery [2, 3]. EUS-GBD was recently demonstrated to be safe and effective even in patients with cirrhosis [4, 5].

A 72-year-old man with cirrhosis was admitted to intensive care for biliary sepsis

and hepatic encephalopathy. Computed tomography showed hydropic gallbladder, with thickened wall and multiple stones within the lumen. After multidisciplinary evaluation, the patient was considered unfit for surgery and EUS-GBD was undertaken (▶ **Video 1**).

Upon insertion of a lumen-apposing metal stent (LAMS; Hot Axios 10×10 mm; Boston Scientific, Marlborough, Massa-

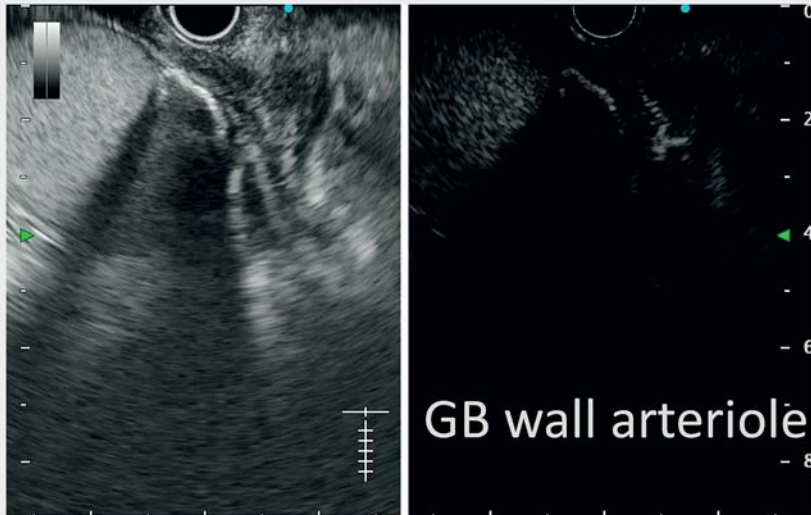


▶ **Fig. 2** Fresh blood from the gallbladder lumen after deployment of a second lumen-apposing metal stent.

achusetts, USA), torrential bleeding occurred due to inadvertent puncture of an arteriole in the gallbladder wall, as confirmed by color Doppler (▶ **Fig. 1 a**). The gallbladder lumen quickly filled with hyperechoic material and the LAMS tip became invisible with EUS, resulting in misdeployment of the distal flange outside the gallbladder (▶ **Fig. 1 b**). The proximal flange was not released and the stent was removed.

A second LAMS (Hot Axios 8×8 mm) was inserted as close as possible to the bleeding point; after successful deployment, a large amount of fresh blood and bile drained into the stomach. Contrast-enhanced harmonic EUS (CH-EUS) identified the feeding vessel (▶ **Fig. 2**, ▶ **Fig. 3**). As no contrast spreading was seen, we hypothesized that the bleeding source was being compressed by the stent. After washing away blood clots, clear bile was observed. Nonclinically relevant hemoglobin drop was observed and biliary sepsis resolved following the procedure. Unfortunately, the patient's condition deteriorated due to progressive renal failure and he died 25 days after admission.

Immediate LAMS replacement with its tamponade action could be an effective rescue strategy for periprocedural bleeding; color Doppler and CH-EUS were



► **Fig. 3** Contrast-enhanced harmonic endoscopic ultrasound showed the gallbladder wall arteriole with no active bleeding as a result of compression by the second lumen-apposing metal stent.

pivotal to identify the feeding vessel, guide stent deployment, and confirm final hemostasis.

Endoscopy_UCTN_Code_CPL_1AL_2AD

Competing interests

None

The authors

Andrea Lisotti^{1,2}, **Anna Cominardi**^{1,2}, **Igor Bacchilega**³, **Pietro Fusaroli**^{1,2}

- 1 Gastroenterology Unit, Hospital of Imola, Imola, Italy
- 2 Department of Medical and Surgical Sciences – DIMEC, University of Bologna, Imola, Italy
- 3 Intensive Care Unit, Hospital of Imola, Imola, Italy

Corresponding author

Andrea Lisotti, MD

Gastroenterology Unit, Hospital of Imola, Department of Medical and Surgical Science, University of Bologna, Via Montericco 4, 40026 Imola, Italy

Fax: +39-0542-662409

lisotti.andrea@gmail.com

References

- [1] Fabbri C, Luigiano C, Lisotti A et al. Endoscopic ultrasound-guided treatments: are we getting evidence based – a systematic review. *World J Gastroenterol* 2014; 20: 8424–8448
- [2] Luk SW, Irani S, Krishnamoorthi R et al. Endoscopic ultrasound-guided gallbladder drainage versus percutaneous cholecystostomy for high risk surgical patients with acute cholecystitis: a systematic review and meta-analysis. *Endoscopy* 2019; 51: 722–732
- [3] Teoh AY, Perez-Miranda M, Kunda R et al. Outcomes of an international multicenter registry on EUS-guided gallbladder drainage in patients at high risk for cholecystectomy. *Endosc Int Open* 2019; 7: E964–E973
- [4] James TW, Krafft M, Croglia M et al. EUS-guided gallbladder drainage in patients with

cirrhosis: results of a multicenter retrospective study. *Endosc Int Open* 2019; 7: E1099–E1104

- [5] Fusaroli P, Serrani M, Sferrazza S et al. Elective cholecystectomy after reversal of septic shock using multimodality endoscopic gallbladder drainage. *Endoscopy* 2018; 50: E299–E300

Bibliography

DOI <https://doi.org/10.1055/a-1065-1678>

Published online: 9.12.2019

Endoscopy 2020; 52: 517–519

© Georg Thieme Verlag KG

Stuttgart · New York

ISSN 0013-726X

ENDOSCOPY E-VIDEOS

<https://eref.thieme.de/e-videos>



Endoscopy E-Videos is a free access online section, reporting on interesting cases and new

techniques in gastroenterological endoscopy. All papers include a high quality video and all contributions are freely accessible online.

This section has its own submission website at

<https://mc.manuscriptcentral.com/e-videos>