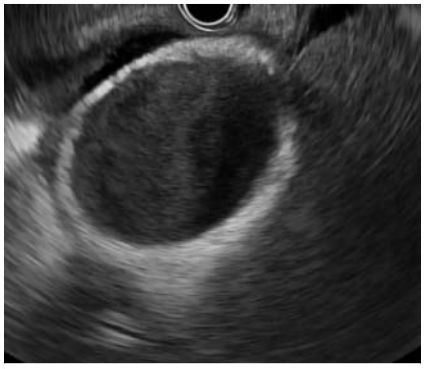
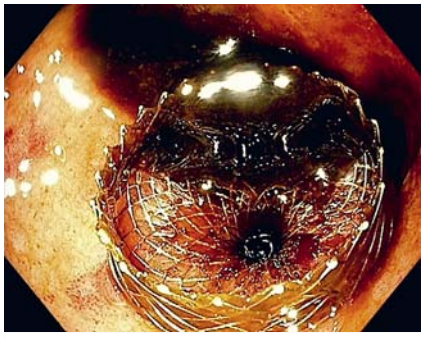
Endoscopic management of a perforated gallbladder

▶ **Fig. 1** Computed tomography showed a distended gallbladder with a large stone.



▶ **Fig. 2** Endoscopic ultrasound showed free fluid around the gallbladder, consistent with a perforated gallbladder.



▶ **Fig. 3** Endoscopic image showing a lumen-apposing metal stent, which was placed in a transduodenal approach into the gallbladder at a site of intact wall.

Video 1 Endoscopic management of a perforated gallbladder.

▶ **Fig. 4** Computed tomography scan after the procedure confirmed a perforated gallbladder.

▶ **Fig. 5** Computed tomography scan 8 weeks after the procedure showing resolution of a perforated gallbladder.

An 88-year-old woman with obesity (body mass index 40 kg/m^2), diabetes, and heart failure presented with acute cholecystitis. Computed tomography (CT) showed a distended gallbladder with a large stone (▶ **Fig. 1**). She was started on intravenous fluids and antibiotics. After 5 hours into her admission, she began to become lethargic and had increasing tachycardia. The patient was deemed a nonsurgical candidate owing to her comorbidities and age. Given the recent evidence [1], the patient was referred for endoscopic ultrasound (EUS)-guided drainage after multidisciplinary discussion.

On EUS, free fluid was noted around the gallbladder, which was consistent with a perforated gallbladder (▶ **Fig. 2**, ▶ **Video 1**) and explained the clinical deterioration. The decision was made to drain the gallbladder where the gallbladder wall was intact. A 10 × 10 mm lumen-apposing metal stent (LAMS) was placed into the gallbladder through a site of intact wall in a transduodenal approach (▶ **Fig. 3**). Repeat CT scan was performed after the procedure given the suspicion of

a perforated gallbladder, and confirmed the diagnosis (▶ **Fig. 4**). The LAMS was positioned away from the perforation on CT and was in place in the gallbladder. The patient was discharged 7 days later with resolution of symptoms and normalization of laboratory values.

CT scan at 8 weeks showed resolution of the gallbladder perforation, with the LAMS in place (▶ **Fig. 5**). Endoscopy was performed, and the stent and gallstone were removed. Contrast was injected into the gallbladder and showed no further filling defects in the entire biliary system. On 4-week follow-up the patient was doing well without any symptoms.

This case demonstrates that EUS-guided drainage can be effective in patients with acute cholecystitis who are unsuitable for surgery, even when a perforated gallbladder is suspected. It is important to place the LAMS at a site of intact gallbladder wall.

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Competing interests

Arvind J. Trindade is a consultant for Olympus America and Pentax Medical, and has received research support from Ninepoint Medical. Petros C. Benias is a consultant for Olympus America, Pentax Medical, Creo Medical, Apollo Overstitch, and FujiFilm. The remaining authors declare that they have no conflict of interest.

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Bibliography

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