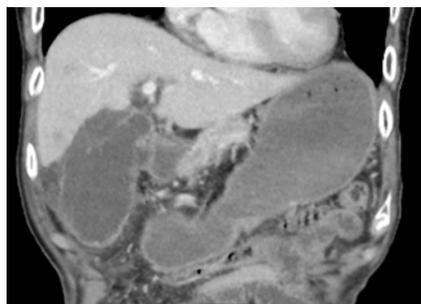
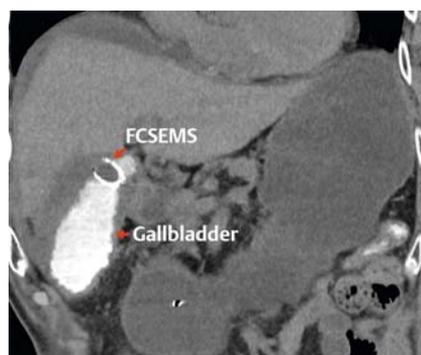


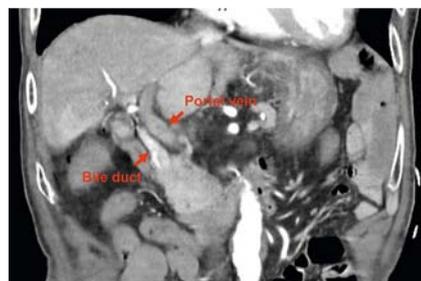
## Endoscopic coagulation for massive bleeding from a gallbladder ulcer after endoscopic ultrasound-guided gallbladder drainage



► **Fig. 1** Computed tomography at the initial admission showed an inflamed gallbladder with perforation.



► **Fig. 2** Computed tomography performed the day after endoscopic ultrasound-guided gallbladder drainage showed that there was insufficient space between the fully covered self-expandable metal stent (FCSEMS) and gallbladder wall, and the FCSEMS was in contact with the gallbladder mucosa.



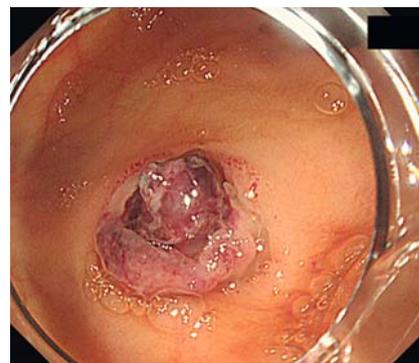
► **Fig. 3** Arterial phase computed tomography showed extravasation in the bile ducts.

Endoscopic ultrasound-guided gallbladder drainage (EUS-GBD) is an effective treatment for high-risk surgical cholecystitis and its use is gradually becoming more widespread. According to meta-analyses, the frequency of bleeding is low (1.8–4.3%) [1,2]. We report a case of arterial bleeding from a gallbladder ulcer after EUS-GBD that was successfully cauterized endoscopically and hemostasis was achieved.

An 85-year-old man, who had been admitted to another hospital with Parkinson's disease and cerebral infarction, was transferred to our hospital with acute cholecystitis (► **Fig. 1**). He was deemed high risk for surgery and had an age-adjusted Charlson Comorbidity Index score of 6. Therefore, he underwent EUS-GBD with a fully covered self-expandable metal stent (FCSEMS). Computed tomography (CT) performed the day after EUS-GBD showed insufficient space between the FCSEMS and gallbladder wall, and the FCSEMS was in contact with the gallbladder mucosa (► **Fig. 2**).

The patient was discharged and readmitted 68 days later for melena. Arterial phase CT showed a migrated FCSEMS and extravasation into the bile ducts (► **Fig. 3**). An admission endoscopy revealed a clot at the fistula (► **Fig. 4**).

Following fistula dilation using a balloon catheter, an endoscope was inserted into the gallbladder. Although there was no active bleeding, a blood vessel was found at the ulcer, which we cauterized for 7 s (► **Fig. 5**). Anemia progressed 12 days later, and a repeat endoscopy showed a large number of clots in the gallbladder. During clot removal, spurting bleeding was observed (► **Video 1**). Hemostatic forceps were used to stop the bleeding, and cauterization was performed. No further bleeding occurred. Mechanical stimulation of the gallbladder wall by the FCSEMS may be considered a cause of



► **Fig. 4** Endoscopy showed a clot at the fistula after endoscopic ultrasound-guided gallbladder drainage.

gallbladder ulceration and hemorrhage; therefore, the FCSEMS should be placed in an area with sufficient space.

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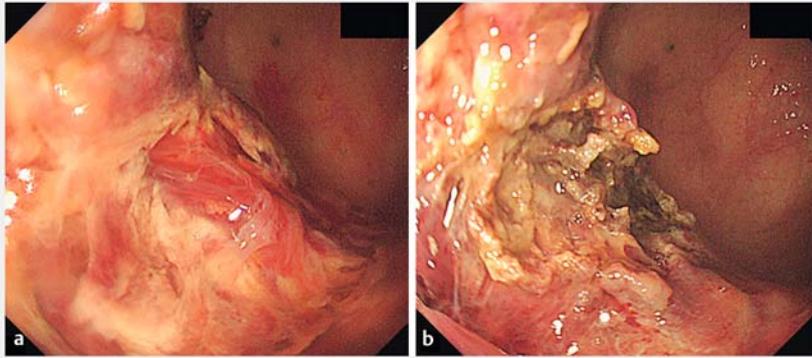
### Competing interests

The authors declare that they have no conflict of interest.

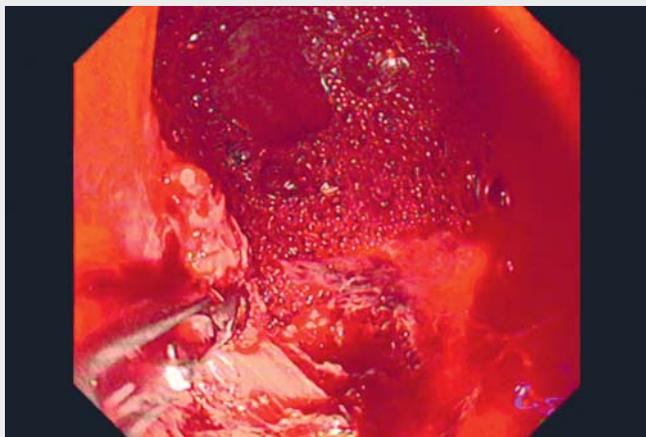
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► **Fig. 5** **a** A blood vessel was found at the ulcer. **b** Initial hemostasis was limited to brief cautery owing to concerns of perforation.



► **Video 1** As the clots were removed, spurting bleeding was observed. Endoscopic coagulation was successful.

## Bibliography

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