

Double puncture of the stomach and duodenum during EUS-guided gallbladder drainage (with video)

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EUS-guided gallbladder drainage (EUS-GBD) has recently emerged as an alternative method for treating acute cholecystitis.^[1-3] The gallbladder can be visualized from the stomach or duodenum and can also be punctured from these sites; however, adverse events of stent deployment such as bleeding, stent migration, and pyloric ring obstruction from lumen-apposing metal stent have been reported.^[4] In addition, the gastric and duodenal walls can be injured during localization of the gallbladder, and perforation can occur if EUS-GBD is attempted using a plastic stent. Here, we describe a case of double puncture of the duodenum and stomach during EUS-GBD and present technical tips for preventing this adverse event.

A 92-year-old female was referred to our hospital for the treatment of acute cholecystitis. After insertion of the echoendoscope, the gallbladder could be identified, but it was difficult to visualize the gallbladder neck, even with repeated insertions of the echoendoscope into the duodenum. After identification of the gallbladder neck, the gallbladder was punctured using a 19G needle [Figure 1]. After guidewire deployment [Figure 2], fistula dilation was performed but was extremely difficult, even with the use of an electrocautery dilator. Finally, a fully covered metal stent was

deployed [Figure 3]. Inflammatory markers were elevated following the procedure, suggesting bile peritonitis, which was treated conservatively for 7 days. Computed tomography [Figure 4] and upper gastrointestinal endoscopy [Figure 5] revealed double puncture of the duodenum and stomach. As shown in Figure 1, double puncture could be visualized on retrospective evaluation of the EUS images (arrow) (Video 1).

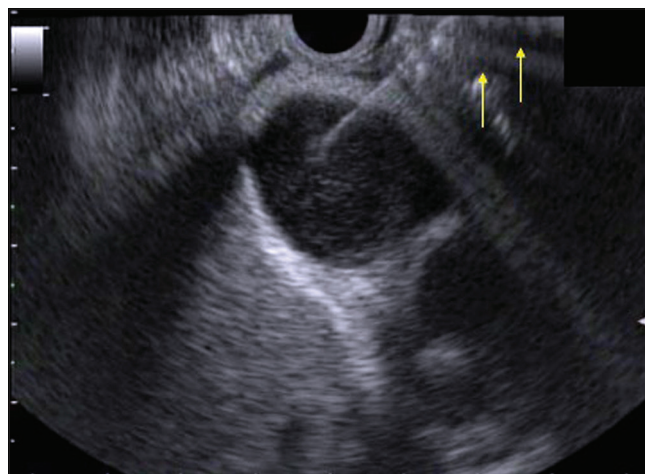


Figure 1: Endoscopic ultrasound imaging shows puncture of the gallbladder using a 19G needle (arrow; the stomach and duodenum wall)

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Figure 2: Fluoroscopic imaging showing the insertion of the guidewire through the needle and into the gallbladder

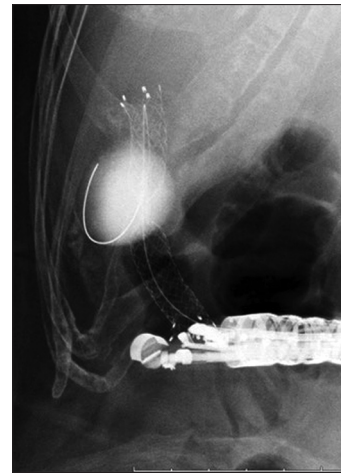


Figure 3: Fluoroscopic imaging confirms the deployment of the fully covered metal stent

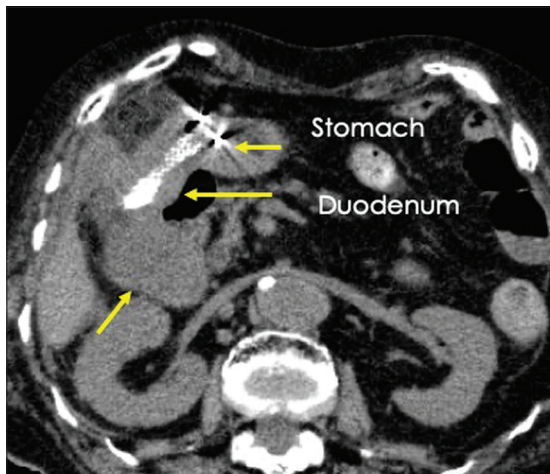


Figure 4. Computed tomography reveals double puncture of the duodenum and stomach



Figure 5: Endoscopic image also shows double puncture of the duodenum and stomach

To prevent double puncture, it is important to check for double mucosal sign before puncturing the target^[5] in EUS-GBD. Furthermore, during EUS-GBD procedure, if tract dilation might be challenging as presented case, possibility of double puncture should be considered.

In conclusion, as perforation is a possible complication of this procedure if a plastic stent is deployed, an alternative puncture site should be considered if fistula dilation is extremely difficult.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient has given her consent for her images and other clinical information to be reported in the journal. The patient understands that her name and initial will not be

published and due efforts will be made to conceal her identity, but anonymity cannot be guaranteed.

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Conflicts of interest

Takeshi Ogura is an Editorial Board Member of Endoscopic Ultrasound. The article was subject to the journal's standard procedures, with peer review handled independently of this Member and his research groups. There are no other conflicts of interest.

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