



Endoscopic Techniques for Gallbladder Drainage: Never without My Endoscopic Ultrasound

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To the Editor:

We read with great interest the article by Yoshida *et al.*¹ published online in January 2021, that described cholangioscopic assistance for endoscopic transpapillary gallbladder drainage (ETGBD) in 101 high-risk surgical patients with acute cholecystitis. The authors reported that the optional use of cholangioscopy could lead to a significantly higher technical success rate than the use of conventional ETGBD alone (94.1% vs 72%). A 4-step classification was also developed to categorize the factors that could complicate ETGBD. The authors conclude that the application of cholangioscopic assistance in a coordinated manner, based on the 4-step classification, represents a valid strategy for improving the success rate of ETGBD, in particular in the early stages, when there is a greater probability of technical failure. However, as stated by the authors, ETGBD is a challenging procedure that requires advanced endoscopic techniques and carries the possibility of adverse events, such as post-ERCP pancreatitis. Furthermore, advancing the guidewire in the presence of tortuosity of the cystic duct remains an unsolved issue, even with cholangioscopic assistance.

Endoscopic ultrasound-guided gallbladder drainage (EUS-GBD) represents a valid alternative that can overcome the abovementioned problems. EUS-GBD is a well described procedure in high-risk surgical patients with acute cholecystitis, either as a bridge to surgery or as a definitive therapy.²⁻⁶ Two recent systematic reviews and meta-analyses reported a significantly higher clinical success rate with EUS-GBD than with ETGBD⁷ and percutaneous gallbladder drainage,⁸ with similar rates of adverse events between the procedures. In the past year, faced with issues related to the COVID-19 (coronavirus disease 2019) pandemic, such as a shortage of operating rooms and intensive care unit beds, our group suggested that EUS-GBD should be considered the intervention of choice in patients with acute cholecystitis to obtain a definitive treatment and allow rapid patient discharge.⁹ We reported the case of an 80-year-old woman with sepsis due to acute cholecystitis that was successfully managed outside the operating room and intensive care unit. In that patient, gallbladder drainage was achieved by the EUS-guided placement of a 10-mm electrocautery-enhanced lumen-apposing metal stent (LAMS). The procedure lasted 20 minutes and no adverse events occurred. The patient was discharged 4 hours later.¹⁰ Furthermore, we previously reported that in most cases, EUS-GBD could be performed without general anesthesia, avoiding intensive care unit admission and reducing the occurrence of anesthesiology-related adverse events.^{11,12} Adverse effects of EUS-GBD, such as bleeding and perforation, have been described in a small percentage of cases.⁸ In our experience, a conspicuous bleeding due to the puncture of a gallbladder wall arteriole following the insertion of a LAMS was successfully rescued by the deployment of a second LAMS close to the bleeding point, leading to mechanical hemostasis.¹³ In that case, contrast-enhanced harmonic



EUS (CH-EUS) played a central role. Although CH-EUS has already been shown to be a useful tool in the diagnostic phase,¹⁴⁻¹⁶ increasing exexperience with CH-EUS guided therapeutic interventions is being reported. In the aforementioned case, CH-EUS was crucial for the identification of the feeding vessel, allowing the deployment of the second LAMS in a targeted manner. Furthermore, the absence of spreading of the contrast dye demonstrated the success of the rescue strategy.

As was brilliantly demonstrated by Yoshida *et al.*,¹ some technological developments can be adopted to simplify complex interventional procedures. In addition to the introduction of dedicated devices for EUS-guided drainage that allow the spread of pancreatic fluid collection or biliary drainage,¹⁷⁻¹⁹ it was found that the use of a single-operator digital cholangioscope could improve the technical and clinical outcomes of ETGBD. Finally, several drainage strategies are available for use in high-risk surgical patients with acute cholecystitis; in our opinion, EUS-GBD seems to offer some marked advantages over ETGBD and percutaneous gallbladder drainage,^{20,21} providing a definitive therapy with high rates of technical and clinical success while requiring less anesthesia and a shorter duration of hospitalization.

CONFLICTS OF INTEREST

No potential conflict of interest relevant to this article was reported.

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