

ERCP failure: EUS gallbladder drainage as first alternative?

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Bibliography

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Endoscopic ultrasound-guided gallbladder drainage (EUS-GBD) is gaining popularity as an option for drainage of the gallbladder in patients suffering from acute cholecystitis who are at high risk for cholecystectomy [1]. The procedure could also be used to convert permanent cholecystostomy to internal drainage [2]. EUS-GBD has been shown by multiple retrospective studies to be associated with reduced adverse events (AEs), re-interventions and readmissions [3–5]. The advent of a cautery-tipped lumen-apposing stent also significantly reduced the complexity of the procedure and allowed for creation of a secure anastomosis [6–7]. In this issue of *Endoscopy International Open*, Chang et al presented a series of nine patients who received EUS-GBD as a method of drainage in malignant biliary obstruction with failed ERCP [8]. They reported a clinical success rate of 77.78%. One patient suffered from recurrent obstruction at 7 months after EUS-GBD and received EUS-guided choledochoduodenostomy.

Performance of EUS-GBD in the setting of malignant biliary obstruction (MBO) is similar to the principle of surgical cholecystojejunostomy. In the 1980s and 1990s, there was extensive debate in the surgical literature about whether cholecystojejunostomy or hepaticojejunostomy provided better palliation of MBO. There are several concerns about using the gallbladder as a conduit for biliary drainage. First, effectiveness of the biliary drainage depends on the patency of the cystic duct. In a retrospective study assessing incidence of patent cystic ducts on cholangiograms performed by endoscopic retrograde cholangiopancreatography (ERCP) in patients with MBO, only 50% of patients had a patent hepatocystic junction [9]. Furthermore, two-thirds of the remaining patients had obstructions less than 1 cm from the hepatocystic junction, potentially increasing risk of future cystic duct obstruction. Results from multiple surgical series demonstrated that the overall rate of recurrent biliary obstruction was between 8% and 48% [10–12]. Thus,

proximity of the cystic duct opening to the site of obstruction may be a risk factor for recurrent obstruction.

EUS-guided biliary drainage (EUS-BD) can be achieved by a number of approaches, either transpapillary or transmurally [13–14]. For transpapillary approaches, EUS-*rendezvous* ERCP or antegrade stenting could be performed. For transmural procedures, EUS-guided choledochoduodenostomy (CDS) and hepaticogastrostomy (HGS) could be performed. Performance of these procedures during the learning curve can be associated with a risk of AEs. Performance of them by an endoscopist fluent in them is associated with procedural AE rates comparable to that of ERCP. The availability of single-step devices for CDS and hepaticogastrostomy will further improve the ease and safety of performing these procedures [15–16]. The benefit of transmural drainage is that the stent is placed in the bile duct far from the tumor, thus risk of tumor in-growth is significantly reduced. Indeed, a recent randomized study demonstrated that EUS-BD may provide higher stent patency rates and lower AE rates (particularly for pancreatitis) as compared to ERCP in unresectable MBO [16].

Hence, in the presence of available expertise and devices, EUS-BD should still be the first choice for draining MBO. In the event that EUS-BD cannot be performed, EUS-GBD can then potentially provide another option for biliary drainage.

Competing interests

Prof. Anthony Y.B. Teoh is a consultant for Boston Scientific, Cook, Taewoong, and Microtech Medical Corporations.

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