

LETTER TO THE EDITOR

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# Biliary drainage guided by endoscopic ultrasonography is a doable objective

Abeer Abdellatef\*  and Mohamed-Naguib Wifi

## Abstract

The therapeutic usage of EUS is being developed. EUS-guided biliary drainage (EUSBD) is a recognized viable replacement for percutaneous transhepatic biliary drainage (PTBD) in severe cases with the obstructive biliary disease having ERCP failure due to a failure in cannulation or those with surgically altered anatomies, such as hepatico-jejunal anastomosis following Billroth II reconstruction, Roux-en-Y limb, Whipple procedure, or Roux-en-Y gastric bypass, or cases with inaccessible papilla because of severe duodenal inflammatory structure.

## To the editor

EUS-guided biliary drainage was reported in 2001 by Giovannini et al. Following this report, many groups reported the efficacy of EUS-BD as an alternative biliary drainage method after unsuccessful ERCP [1]. Many reviews have been published in the last 10 years thoroughly explained various EUS-BD techniques and reported efficacy and safety of that technique.

A significant study by Pawa R. et al. [2] conducted on endoscopic ultrasound-guided biliary drainage (EUS-BD) provides a novel and promising approach, particularly in challenging instances with obstructive biliary disease.

Endoscopic retrograde cholangiopancreatography-guided biliary drainage (ERC-PBD) is the frequently used approach for handling biliary obstruction. However, it has a wide variety of post-procedure problems and specific technical challenges [3]. Percutaneous transhepatic biliary drainage (PTBD) was the only choice for severe cases with biliary drainage because of anatomical abnormalities or inaccessible papilla [4]; however, it is involved in several adverse effects, including catheter dislocation, bleeding, infection, acute cholangitis, biliary leakages, and pneumothorax. Additionally, it is typically uncomfortable for patients because of the external drainage

catheter, and it is not recommended with multiple liver metastasis or ascites [5, 6].

Recently, endoscopic ultrasound (EUS) has a superior modality over conventional noninvasive imaging techniques such as computed tomography (CT), magnetic resonance cholangiopancreatography (MRCP), transabdominal ultrasound, and magnetic resonance imaging (MRI) in being a diagnostic tool and playing a significant therapeutic role as well [7].

Several EUS-BD methods described in the literature in this clinical setting are based on the clinical case, the access to the biliary tree, and the obstruction location [8] like EUS-guided choledochoduodenostomy, EUS-guided rendezvous, EUS-guided hepaticogastrostomy, EUS-directed transgastric ERCP, and EUS-guided gallbladder drainage. EUS provides insights about biliary obstructions, allowing for immediate access to the biliary tree even in case of surgically changed anatomy or duodenal invasion [9]. Thus, it is agreed in being potential alternatives for percutaneous biliary drainage (PTBD) and surgical bypass [2].

Comparing PTBD and EUS-BD in a meta-analysis including 483 patients with malignant biliary obstruction has shown that EUS-BD was associated with higher clinical success, a lower re-intervention rate, and decreased adverse events (AEs) when compared with PTBD [9]; moreover, another meta-analysis confirmed a cumulative success rate of 94.71% and adverse events of 23.32 % for EUS-BD [10].

\*Correspondence: beero4a@yahoo.com; Abeer.Abdellatif86@gmail.com

Hepatogastroenterology Unit, Internal Medicine Department, Kasr Al-Ainy School of Medicine, Cairo University, Cairo, Egypt

It is noteworthy that the average rate of adverse events associated with EUS-BD has been found to range between 17 and 18.9% [11, 12] with a lower risk of pancreatitis than ERCP. This may be because EUS-guided transluminal biliary drainage avoids traumatic papillary manipulation, which can result in acute pancreatitis [3]. Additionally, EUS-BD could be challenging in terms of determining the optimal drainage strategy and stent type (self-expanding metallic stent [SEMS] plastic vs. stent [PS]). Also, patients with potentially resectable biliary tumors may require preoperative biliary drainage; thus, palliative endoscopic stent placement and endoscopic biliary drainage (EBD) are some of the most suitable procedures [13]. Additionally, other criteria influencing the optimum stent selection include the degree of ductal dilatation, the indication (malignant vs. benign), the ability of the wire to traverse the anastomosis, the patient's surgical indication, and the length of the fistula tract [14].

Additionally, the combination of EUS-BD and ERCP methods may be another reasonable solution for biliary drainage, as they both have a low likelihood of biliary reintervention and a high technical success rate [15]. Finally, the optimum technique and accessible route are still debatable and are dependent on various criteria, including the endoscopist's experience, anatomical accessibility, and procedure indication.

EUS-guided biliary drainage was first reported in Egypt since 2013. In 2019, an Egyptian multicenter study has been published in *Therapeutic Advances in Gastrointestinal Endoscopy* [16]. In the last 2 years, EUS-BD became widely used in many centers in Egypt.

In conclusion, EUS-BD is a potential replacement for ERCP and PTBD in difficult biliary drainage cases; it has a high success rate, fewer reinterventions, and decreased adverse effects, especially when conducted at advanced endoscopy centers. However, additional studies on the efficacy of EUS-guided biliary drainage in severe cases with biliary disease are required.

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#### Core tip

Considerable difficulties exist in handling severe cases with obstructive biliary disease and identifying benign from malignant etiology to avoid potentially fatal errors. It is aimed to discuss the standard diagnostic and potential therapeutic roles of EUS in identifying and handling various severe cases with obstructive biliary illness using endoscopic ultrasound-guided biliary drainage (EUS-BD) methods.

#### Authors' contributions

AA designed the research and wrote the letter, and MW revised the letter. The authors read and approved the final manuscript.

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#### Declarations

#### Ethics approval and consent to participate

Not applicable.

#### Consent for publication

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#### Competing interests

The authors declare that they have no competing interests.

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