10.7861/clinmed.22-4-s14

Systematic review of endoscopic ultrasound-guided biliary drainage versus percutaneous transhepatic biliary drainage

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Introduction

Endoscopic ultrasound-guided biliary drainage (EUS-BD) is a novel technique that allows biliary drainage by echoendoscopy and fluoroscopy using a stent from the biliary tree to the gastrointestinal tract. Percutaneous transhepatic cholangiography biliary drainage (PTBD) is a diagnostic and therapeutic procedure that involves inserting a needle into the biliary tree, followed by the immediate insertion of a catheter. This study examined the technical aspects and outcomes of these different approaches to biliary drainage.

Materials and methods

We compared the technical aspects and outcomes of two different approaches to biliary drainage: EUS-BD and PTBD. Different databases (including PubMed, Embase, ClinicalTrials.gov, the Cochrane library, Scopus and Google Scholar) were searched according to the PRISMA guidelines to obtain studies comparing PTBD and EUS-BD.

Results

Among the six studies that fulfilled the inclusion criteria, PTBD patients underwent significantly more reinterventions (4.9 vs 1.3), experienced more post-procedure pain (4.1 vs 1.9) and experienced more late adverse events (53.8% vs 6.6%) than EUS-BD patients (Table 1).[1–6] The EUS-BD group had a higher success rate of biliary drainage (92% vs 46%; p>0.05) and a lower rate of adverse events (20% vs 46%; p=0.05) than PTBD group. There was a significant reduction in total bilirubin in both groups (from 16.4 µmol/L to 3.3 µmol/L for EUS-BD and 17.2 µmol/L to 3.8 µmol/L for PTBD; p=0.002) at the 7-day follow-up. There were no significant differences observed for complication rates between PTBD and EUS-BD (3.3 vs 3.8, respectively). PTBD was associated with a higher adverse event rate than EUS-BD in all procedures, including reinterventions (80.4% vs 15.7%, respectively) and a higher index procedure (39.2% vs 18.2%, respectively).

Conclusion

The findings of this systematic review revealed that EUS-BD is linked with a higher rate of effective biliary drainage and a more manageable procedure-related adverse event profile than PTBD. EUS-BD could become a first-line biliary drainage treatment instead of endoscopic retrograde cholangiopancreatography if the outcomes of clinical studies are positive and technologies are simplified. Prospective, randomised controlled studies are required to clarify these issues. ■

Table 1. Rates of clinical and technical success in the included studies

Study	Technical success		Clinical success	
	EGBD, event/total cases, n	PTBD, event/total cases, n	EGBD, event/total cases, n	PTBD, event/total cases, n
Artifon *et al*[1]	13/13	12/12	13/13	12/12
Bapaye *et al*[2]	23/25	26/26	23/25	26/26
Khashab *et al*[3]	19/22	51/51	19/19	47/51
Giovannini *et al*[4]	19/20	17/17	18/19	17/17
Jung *et al*[5]	32/34	31/32	28/32	27/31
Sharaiha *et al*[6]	43/47	12/13	27/43	3/12

EGBD = endoscopic ultrasound-guided choledochoduodenostomy; PTBD = percutaneous transhepatic biliary drainage.

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References

1 Artifon EL, Aparicio D, Paione JB *et al*. Biliary drainage in patients with unresectable, malignant obstruction where ERCP fails: endoscopic ultrasonography-guided choledochoduodenostomy vs percutaneous drainage. *J Clin Gastroenterol* 2012;46:768–74.
2 Bapaye A, Dubale N, Aher A. Comparison of endosonography-guided vs. percutaneous biliary stenting when papilla is inaccessible for ERCP. *United European Gastroenterol J* 2013;1:285–93.
3 Khashab MA, Valeshabad AK, Afghani E *et al*. A comparative evaluation of EUS-guided biliary drainage and percutaneous drainage in patients with distal malignant biliary obstruction and failed ERCP. *Dig Dis Sci* 2015;60:557–65.
4 Giovannini M. Learning in therapeutic EUS. *Endosc Ultrasound* 2021;10:317–8.
5 Jung Y, Lee J, Cho JY *et al*. Comparison of efficacy and safety between endoscopic submucosal dissection and transanal endoscopic microsurgery for the treatment of rectal tumor. *Saudi J Gastroenterol* 2018;24:115–21.
6 Sharaiha RZ, Kumta NA, Desai AP *et al*. Endoscopic ultrasound-guided biliary drainage vs percutaneous transhepatic biliary drainage: predictors of successful outcome in patients who fail endoscopic retrograde cholangiopancreatography. *Surg Endosc* 2016;30:5500–5.

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