

EUS-guided choledochoduodenostomy and duodenal stenosis: A marriage doomed to fail?



Malignant biliary obstruction and gastric outlet obstruction (GOO) may occur simultaneously in patients with gastroduodenal or pancreatic malignancies, complicating retrograde biliary drainage. Over the years, the endoscopic armamentarium has been expanded with the development of EUS-guided biliary drainage techniques, such as EUS-guided hepaticogastrostomy and choledochoduodenostomy. In May 2022, the video case report by Raffaele Salerno and colleagues¹ was published, illustrating the difficulties of maintaining adequate biliary drainage in patients with an EUS-guided choledochoduodenostomy and GOO. We agree with the authors that EUS-guided biliary drainage should be first choice in patients with inoperable pancreatic adenocarcinoma and failed ERCP. However, several crucial remarks are needed regarding this specific group of patients with both malignant biliary obstruction and GOO.

First, EUS-guided choledochoduodenostomy was performed in a patient with a duodenal stenosis, which was managed by surgical gastroenterostomy. Despite the resolution of GOO, the proximity of the lumen-apposing metal stent (LAMS) to the neoplastic duodenal occlusion has been recently highlighted as a potential risk factor for ascending cholangitis or impaction by food remnants.^{2,3} The authors also recognized this potential cause of LAMS occlusion and attempted to resolve this problem by placing a duodenal stent. However, duodenal stenting itself has been proven to be a non-durable solution for neoplastic duodenal obstruction because of the high risk of re-occlusion owing to neoplastic invasion or hyperplastic tissue ingrowth.^{4,5} In line with these findings, our recent analysis of outcomes of various approaches in patients with both biliary and duodenal obstruction (CABRIOLET-study) identified the combination of EUS-guided choledochoduodenostomy and duodenal stenting as an independent risk factor for stent dysfunction.² This increased risk was independent of GOO being resolved by another procedure (as for example EUS-guided or, as in this case, surgical gastroenterostomy), underlining the crucial role of an adequate duodenal transit in the prevention of LAMS dysfunction.

Furthermore, EUS-guided hepaticogastrostomy holds potential advantages over a choledochoduodenostomy in the context of GOO, as it is placed at a greater distance from the tumor and is less susceptible to food impaction. In the same (CABRIOLET) analysis by our group, no stent dysfunction occurred in patients treated

with the EUS-guided gastroenterostomy (EUS-GE) plus hepaticogastrostomy combination, whereas patients who underwent EUS-GE plus choledochoduodenostomy or duodenal stenting plus EUS-guided choledochoduodenostomy had stent dysfunction in 31% and 83% of cases respectively. In clinical practice, EUS-guided choledochoduodenostomy is still frequently used in the setting of GOO, since it is regarded as easier and safer when compared to EUS-guided hepaticogastrostomy.⁶⁻⁸ This approach may thus lead to unnecessary events of stent dysfunction.⁹

The multitude of treatment options currently available for those with combined obstruction complicate the extraction of lessons that can be learned. Considering the advantages of EUS-GE over surgical gastroenterostomy (lower adverse event rate and shorter hospital stay)¹⁰⁻¹² as well as over duodenal stenting (improved clinical outcomes and reduced stent dysfunction),^{4,5} we are especially keen to learn about the outcomes of various biliary drainage strategies in patients treated with EUS-GE.^{3,8} Although the data supporting EUS-GE are becoming increasingly overwhelming, physicians should still be aware that EUS-GE remains an off-label indication while randomized confirmation is sought. More prospective data are also warranted to provide a definite answer to the question of how to optimally drain patients with both GOO and biliary obstruction. However, based on recent data that suggest EUS-guided choledochoduodenostomy and a duodenal stenosis are an ill-suited combination, we believe that this marriage is doomed to fail and we discourage the use of EUS-guided choledochoduodenostomy in the setting of GOO.

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Abbreviations: GOO, gastric outlet obstruction; LAMS, lumen-apposing
metal stent.

REFERENCES

1. Salerno R, Mezzina N, Carmagnola S, et al. Endoscopic management of recurrent cholangitis following EUS-guided choledochoduodenostomy. *VideoGIE* 2022;7:185-6.
2. Vanella G, Bronswijk M, van Wanrooij RLJ, et al. Combined endoscopic mAnagement of BiliaRy and gastrlc OutLET obstruction (CABRIOLET Study): a multicenter retrospective analysis. *DEN Open* 2022;3:e132.
3. Brewer Gutierrez OI, Nieto J, Irani S, et al. Double endoscopic bypass for gastric outlet obstruction and biliary obstruction. *Endosc Int Open Sep* 2017;5:E893-9.
4. van Wanrooij RLJ, Vanella G, Bronswijk M, et al. Endoscopic ultrasound-guided gastroenterostomy versus duodenal stenting for malignant gastric outlet obstruction: an international, multicenter, propensity score-matched comparison. *Endoscopy*. Epub 2022 Mar 24.
5. Ge PS, Young JY, Dong W, et al. EUS-guided gastroenterostomy versus enteral stent placement for palliation of malignant gastric outlet obstruction. *Surg Endosc* 2019;33:3404-11.
6. van der Merwe SW, van Wanrooij RLJ, Bronswijk M, et al. Therapeutic endoscopic ultrasound: European Society of Gastrointestinal Endoscopy (ESGE) guideline. *Endoscopy* 2022;54:185-205.
7. van Wanrooij RLJ, Bronswijk M, Kunda R, et al. Therapeutic endoscopic ultrasound: European Society of Gastrointestinal Endoscopy (ESGE) technical review. *Endoscopy* 2022;54:310-32.
8. Canakis A, Hathorn KE, Irani SS, et al. Single session endoscopic ultrasound-guided double bypass (hepaticogastrostomy and gastrojejunostomy) for concomitant duodenal and biliary obstruction: a case series. *J Hepatobiliary Pancreat Sci*. Epub 2021 Oct 7.
9. Platt KD, Bhalla S, Sondhi AR, et al. EUS-guided gastrojejunostomy and hepaticogastrostomy for malignant duodenal and biliary obstruction. *VideoGIE* 2021;6:95-7.
10. Perez-Miranda M, Tyberg A, Poletto D, et al. EUS-guided gastrojejunostomy versus laparoscopic gastrojejunostomy: an international collaborative study. *J Clin Gastroenterol* 2017;51:896-9.
11. Khashab MA, Bukhari M, Baron TH, et al. International multicenter comparative trial of endoscopic ultrasonography-guided gastroenterostomy versus surgical gastrojejunostomy for the treatment of malignant gastric outlet obstruction. *Endosc Int Open* 2017;5:E275-81.
12. Bronswijk M, Vanella G, van Malenstein H, et al. Laparoscopic versus EUS-guided gastroenterostomy for gastric outlet obstruction: an international multicenter propensity score-matched comparison (with video). *Gastrointest Endosc* 2021;94:526-36.e2.

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Response:

We thank Bronswijk et al¹ for the interesting commentary on our clinical case regarding an EUS-guided choledo-

choduodenostomy and gastric outlet obstruction (GOO).² In their letter, the authors rightly underlined the complexity and issues of biliary drainage in patients with GOO, supported by data from their recent “CABRIOLET Study.”³ In this retrospective analysis involving patients affected by both biliary and duodenal obstruction, a significant trend toward higher biliary stent dysfunction in patients treated with EUS-guided choledochoduodenostomy (EUS-CDS) and duodenal stenting was found, compared to other combinations, that is, hepaticogastrostomy (EUS-HGS), EUS-guided gastroenterostomy (EUS-GE), and transpapillary biliary stenting. On the contrary, EUS-GE+HGS resulted in the best combination in patients with both biliary and duodenal obstruction. According to these data, the authors discourage the use of EUS-CDS in the setting of GOO. Although we sincerely agree with the messages emerging from the literature and highlighted by Bronswijk et al, we would like to clarify some points regarding our clinical case. First of all, at the time of the biliary drainage (EUS-CDS), the patient had already undergone a successful surgical gastroenterostomy, and since the patient’s urgent problem was jaundice, we opted for the quickest and easiest way to obtain a full biliary drainage; EUS-HGS could have been an option, but as pointed out by our colleagues—as well as by other studies—this approach may be associated with longer procedure time, higher rates of failure, and adverse events.⁴ Even the latest European guideline on therapeutic EUS suggests to perform EUS-HGS only for malignant inoperable hilar biliary obstruction, supporting the use of EUS-CDS over EUS-HGS in distal biliary obstruction owing to its lower rate of adverse events.⁵ Secondly, the problem of stent dysfunction in EUS-CDS is well known: there are numerous case reports about it, suggesting that many interventions are possible to solve this issue in most cases.⁶⁻¹⁰ It is most important to continue to accumulate evidence to clarify what is the best treatment in the different scenarios, weighing risks and benefits; we should also keep in mind how these procedures regard, in the vast majority of cases, patients with a reduced life expectancy. This does not mean that we should not offer the best possible treatment, but that we should also consider the “real” effectiveness of our intervention, which should be tailored according to the patient’s overall status, the extent of disease, and, not least, the center’s expertise regarding the different endoscopic procedures. In conclusion, it is important to always remember how each case and each patient is a different story, and one—or more—therapeutic algorithm may not be suitable for every situation: in our case, if the patient had not previously had surgery, the best approach would probably have been EUS-GE in combination with another biliary drainage. Once again, we thank our colleagues for the constructive discussion raised, which we believe will be useful for all endoscopists who perform therapeutic procedures.