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CASE REPORT

Antegrade papillotome navigation as a novel next-line approach for internalization of percutaneous transhepatic biliary drainage



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KEYWORDS

Bile duct obstruction;
Endoscopic
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Summary There is an increasing rivalry between percutaneous transhepatic (PTBD) vs. endoscopic ultrasound-guided biliary drainage (EUS-BD) as rescue techniques after failed endoscopic retrograde cholangiography (ERC) access. While EUS-BD procedures hold a bright future, innovations in PTBD technique are still possible and clinically meaningful, at least so, under the a conceptual framework understanding PTBD as a bridging, anatomy-respecting technology for definitive biliary metal stenting. This, however, calls for successful PTBD internalization as a sine qua non. Against this background, here, I present a novel approach of PTBD internalization using a standard triple-lumen papillotome as a stiff catheter for probing and assisting in guidewire cannulation of the route to the duodenum. This is the first report on such re-purposed use of a papillotome, which may be instrumental in fine-tuning contrast media filling and crossing angulations within the biliary system. Taken together, innovative advancements and variations in PTBD technique, such as the presented “*antegrade papillotome navigation*”, may rescue difficult PTBD internalization and, thus, potentially obviate the need for alternative approaches, including pure EUS-BD or even more complex hybrid PTBD-EUS procedures.

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Introduction

Percutaneous transhepatic biliary drainage (PTBD) finds itself in increasing competition with emerging EUS-based concepts for alternative biliary drainage (EUS-BD) [1]. However, as of now PTBD may remain a valid clinical

option under the premise of successful internalization as a platform for definitive rendez-vous or percutaneous biliary metal stenting (PTBDS with PTBD as a bridging technology respecting the natural biliary anatomy) [2]. Along these lines, however, PTBD internalization stands out as the most critical factor in the recent EUS-BD vs. PTBD discussion, and recent data aimed to explore the relative benefits of EUS-BD vs. PTBD procedures, albeit there are limited randomized data to arrive at firm conclusions and in the available PTBD literature included in the current meta-analysis definitive

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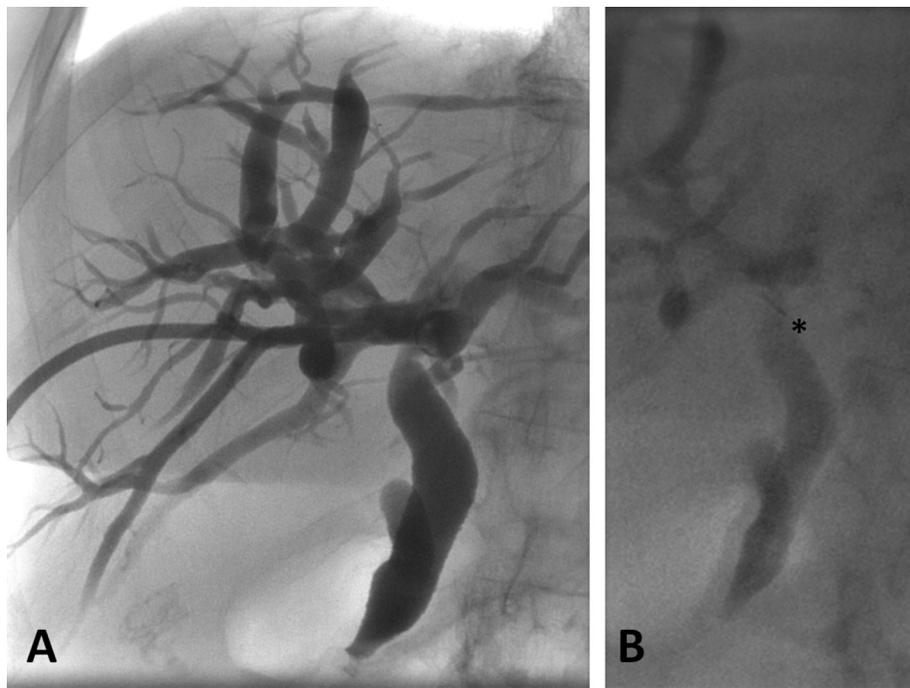


Figure 1 A. Full cholangiogram via an 8 F external percutaneous transhepatic biliary drainage (PTBD) illustrating the high-grade distal CBD stricture with lack of contrast passage into the duodenum. Please also note the sharp angle between the right anterior biliary system and the CBD axis. B. Fluoroscopy frame grab after successful cannulation of the CBD (asterisk: tip of the papillotome).

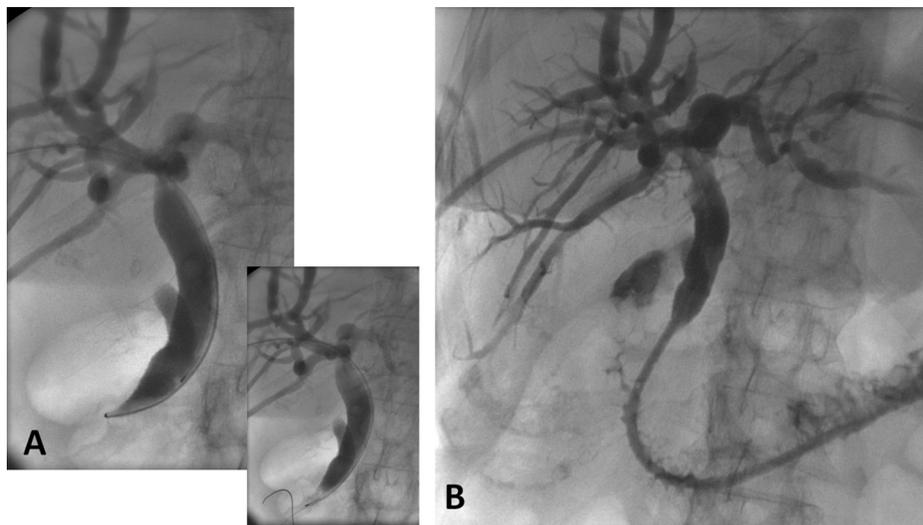


Figure 2 A. Firm alignment of the papillotome into the high-grade stricture. Inset: successful duodenal guidewire passage after correction of the cannulation axis. B. Final cholangiogram after insertion of the 10 F internal-external drain.

biliary metal stenting rates have not stringently been reported. Of interest, an innovative synthesis of the two procedures has recently been presented by Paik et al., in which failed PTBD internalization (16/125 patients) was followed by EUS-BD, further highlighting that internalization remains the most critical component of the percutaneous approach, and that permanent external biliary drainage is definitively to be rejected in recent clinical practice [3]. Although EUS drainage procedures undoubtedly continue to irradiate their pure endoscopic charm and definitively hold a bright future, technical progress in the good old PTBD business may, nonetheless, still possible and clinically

meaningful. From this perspective, here, I present a novel alternative approach for PTBD internalization after failed conventional guidewire passage, which, as an antegrade navigation approach re-purposing the well-aquainted papillotome may also be utilized in EUS-BD.

Clinical case

After establishing an external 8 F single pigtail drainage by routine Chiba needle-guided right anterior access, at a first session, second-step internalization is complicated, beyond the targeted high-grade distal common bile duct

(CBD) stricture, by sharp angulation of the right anterior-to-CBD axis and a moderate subhilar stricture most likely post cholecystectomy. After failure to advance different wires due to repeated left hepatic deviation, we resort to a standard triple-lumen papillotome with a tapered tip (Endoflex, Voerde, Germany) in conjunction with a manually shortened 0.025" guidewire (Jagwire, Boston, Ratingen, Germany). Following on-site contrast media injection at the hilum, this results in prompt CBD cannulation success (Fig. 1). After close alignment of the papillotome into the high-grade stricture, duodenal wire-passage is achieved, and a 10 F internal-external drain inserted, later on converted to rendez-vous biliary metal stenting (Fig. 2, [supplementary Video](#)).

Discussion

Relative to more complex interventional radiology (IR)-based techniques for internalization failure, "*antegrade papillotome navigation*" during percutaneous biliary interventions may be a promising easy-to-perform next-line approach, in particular for difficult endoscopist-guided procedures, due to the endoscopist's familiarity with the re-purposed instrument out of the day-to-day ERCP toolbox [4,5]. Potential benefits of the technique may include:

- dedicated contrast injection at the site of interest and intended advancement helpful to identify the proper route by fine-tuning contrast media filling, blurring either visual control of the guidewire (overfilling) or the anatomic conditions (underfilling);
- the gently curved tip may aid in passing sharp angulations, and;
- the stiff nature of the papillotome instrumental in firm alignment into and passage across tight strictures.

Conclusions

Taken together, innovative advancements and variations in PTBD technique, such as "*antegrade papillotome*

navigation", may rescue difficult PTBD internalization and, thus, potentially obviate the need for alternative approaches, including pure EUS-BD or even more complex hybrid PTBD-EUS procedures.

Disclosure of interest

The authors declare that they have no competing interest.

Appendix A. Supplementary data

Supplementary data associated with this article can be found, in the online version, at <https://doi.org/10.1016/j.clinre.2018.03.010>.

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