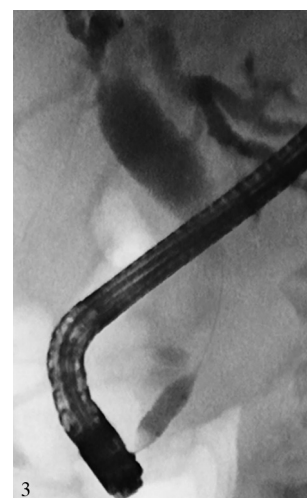
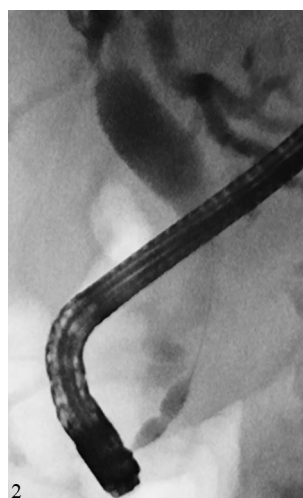


A Novel Non-slip Banded Balloon Catheter for Endoscopic Papillary Balloon Dilation

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Endoscopic papillary balloon dilation (EPBD) is an essential and established procedure for treating bile duct stones [1-3] and is especially useful over endoscopic sphincterotomy in cases involving antithrombotic agent use. A variety of EPBD balloons (length range, 30–50 mm) are currently available. However, balloon slips are often a problem interprocedurally as they require several re-expansions, resulting in unnecessary expansion and adverse events. This is especially likely to occur with shorter-length balloons. In contrast, in some cases, there is insufficient distance from the papilla and scope, or the stones are located near the papilla, such as in multiple stone accumulation cases. Endoscopic papillary balloon dilation is difficult to manage in these cases, particularly using long-length balloons.

To overcome these challenges, a novel balloon catheter (RIGEL Balloon Dilatation Catheter; Japan Lifeline Co., Ltd., Tokyo, Japan) with a very short length of 15 mm and preventive function for slippage, has been developed. A 5 mm ductile band is equipped in the center of the balloon and detects delayed expansion of the central portion, leading to slippage prevention (Fig. 1).

An 83-year-old man, who was using antithrombotic agents, developed obstructive jaundice with cholangitis due to choledocholithiasis. Urgent endoscopic retrograde cholangiography was performed, and biliary cannulation was achieved using a wire-guided method. An 8 mm diameter novel balloon was inserted over the guidewire, and the band was located at the papilla. Then, the balloon was gradually

inflated to 8 atm, with delayed expansion of the central part (Fig. 2). Full expansion was achieved without slippage (Fig. 3). After EPBD, the bile duct stone was completely removed using a retrieval basket catheter. The patient's symptoms were improved rapidly without any adverse events.

Our balloon offers a new device option for EPBD. The short balloon length and strong non-slip function simplify procedures without added disadvantages.

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REFERENCES

- Manes G, Paspatis G, Aabakken L, et al. Endoscopic management of common bile duct stones: European Society of Gastrointestinal Endoscopy (ESGE) guideline. *Endoscopy* 2019;51:472-491. doi:[10.1055/a-0862-0346](https://doi.org/10.1055/a-0862-0346)
- ASGE Standards of Practice Committee; Buxbaum JL, Abbas Fehmi SM, et al. ASGE guideline on the role of endoscopy in the evaluation and management of choledocholithiasis. *Gastrointest Endosc* 2019;89:1075-1105.e15. doi:[10.1016/j.gie.2018.10.001](https://doi.org/10.1016/j.gie.2018.10.001)
- Williams E, Beekingham I, El Sayed G, et al. Updated guideline on the management of common bile duct stones (CBDS). *Gut* 2017;66:765-782. doi:[10.1136/gutjnl-2016-312317](https://doi.org/10.1136/gutjnl-2016-312317)