Cholangioscopy-assisted extraction of choledocholithiasis through novel papillary support: the protective effect on the sphincter of Oddi

Fig.1 Endoscopic retrograde cholangiopancreatography fluoroscopic image showing multiple stones (maximum diameter of 10 mm, arrows) in the lower common bile duct (12 mm).

A 78-year-old man with choledocholithiasis underwent cholangioscopy-assisted extraction for multiple stones with a maximum diameter of 10 mm (> Fig. 1). Considering the potential loss of sphincter of Oddi (SO) function associated with endoscopic sphincterotomy and endoscopic papillary balloon dilation, we used novel papillary support to provide an adequate exit for the extraction of the stones [1, 2]. The papillary support (12 mm in diameter, 25mm in length) is a metal-covered membrane stent with a unique single dumbbell-style design on the papillary side, serving to protect the support from entering the common bile duct (CBD) during stone removal procedures [3].

After biliary intubation, the papillary support was inserted into the distal CBD to facilitate stone removal. The cholangioscopy (eyeMax, 9F; Micro-Tech, Nanjing, China) was inserted into the CBD through the papillary support (> Fig. 2). Then the stones were found directly under cholangioscopy. Stone extraction was accomplished using a basket (> Fig. 3). Subsequently, the papillary support was re-

Fig.2 The papillary support was inserted into the distal common bile duct.



Fig.4 Sphincter of Oddi manometry was performed.

moved, and a biliary plastic stent (7F, 6 cm) was placed in the CBD (> Video 1). Notably, no postoperative pancreatitis, bleeding, or other adverse events were observed.

In this case, we conducted sphincter of Oddi manometry (SOM) both before and after the placement of the papillary support (> Fig. 4). The patient exhibited normal SO function before the procedure. However, after removing the papillary support, there was an immediate decline in CBD pressure, SO basal pressure, amplitude, and frequency of contractions



basket under the choledochoscopy through papillary support.



Video 1 Cholangioscopy-assisted extraction was performed through novel papillary support for choledocholithiasis.

(**Fig. 5**). One week later, the stent was spontaneously removed, and we conducted SOM again to evaluate SO function. The SO basal pressure, amplitude, and frequency of contractions had recovered to normal range (> Fig. 5, Video 1). This encouraging outcome introduces a new method to preserve SO function. Further investigation is necessary to validate the safety and effectiveness of this technique.





* Amplitude refers to the vertical axis on the right, and the rest refers to the vertical axis on the left.

Fig. 5 Sphincter of Oddi pressure before and after the placement of the papillary support, as well as after 1 week.

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Clinical trial

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Conflict of Interest

The authors declare that they have no conflict of interest.

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References

- Yasuda I, Tomita E, Enya M et al. Can endoscopic papillary balloon dilation really preserve sphincter of Oddi function? Gut 2001; 49: 686–691
- [2] Cheon YK, Lee TY, Kim SN et al. Impact of endoscopic papillary large-balloon dilation on sphincter of Oddi function: a prospective randomized study. Gastrointest Endosc 2017; 85: 782–790.e1

[3] Zhang W, Chai N, Li H et al. Cholangioscopyassisted basket extraction of choledocholithiasis through papillary support without endoscopic sphincterotomy: a pilot exploration for super minimally invasive surgery. VideoGIE 2023; 8: 232–234

Bibliography

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