

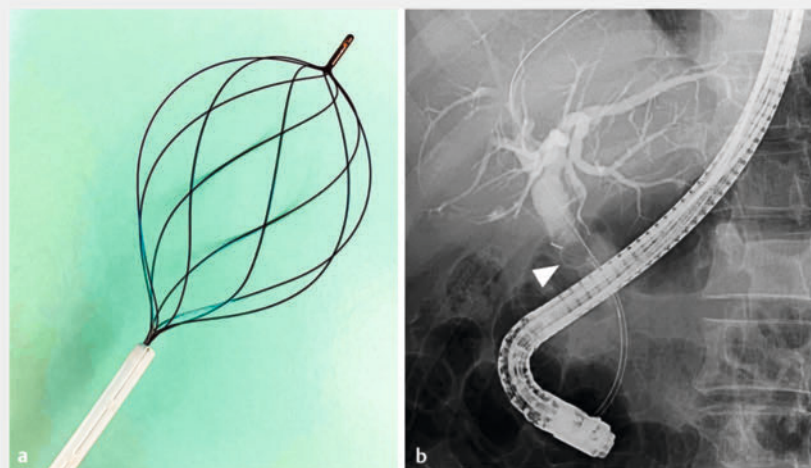
## Emergency digital cholangioscopy-assisted electrohydraulic lithotripsy for basket impaction with an entrapped bile duct stone



### VIDEO



▶ **Video 1** Emergency cholangioscopy-assisted electrohydraulic lithotripsy for basket impaction with an entrapped bile duct stone.



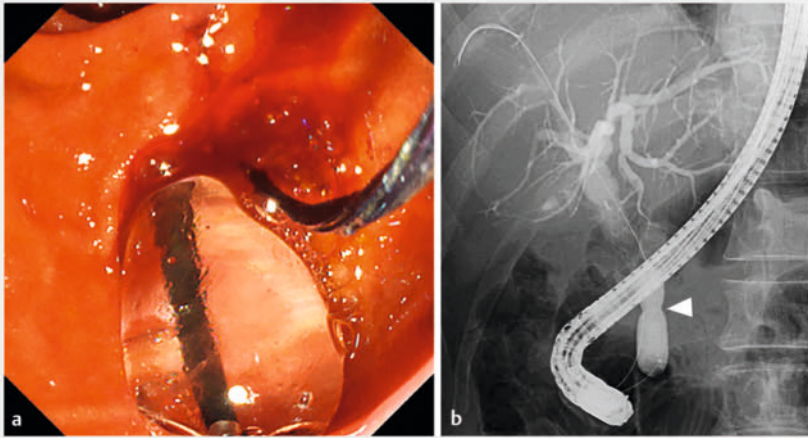
▶ **Fig. 1** **a** A photograph of the lithotripsy basket catheter (Medi-Globe 8-Wire Nitinol Basket; Medico's Hirata Inc, Osaka, Japan). **b** A fluoroscopic image showing the impacted 8-wired basket with an entrapped bile duct stone (arrowhead).

Basket impaction with an entrapped common bile duct stone (CBDS) is among the most challenging complications occasionally encountered by endoscopists during endoscopic lithotripsy [1,2]. Even with the availability of var-

ious devices including a salvage lithotripter, the management of basket impaction sometimes fails, which may necessitate more invasive surgical interventions [2,3,4]. Herein, we report a case of basket impaction successfully managed by

emergency cholangioscopy-assisted electrohydraulic lithotripsy (EHL).

A 68-year-old man presented with jaundice due to a CBDS. Endoscopic retrograde cholangiopancreatography was performed for a 1-cm CBDS. After endoscopic sphincterotomy, a basket catheter (Medi-Globe 8-Wire Nitinol Basket; Medico's Hirata Inc, Osaka, Japan) (▶ **Fig. 1a**) was inserted. Although the CBDS was easily captured within the basket, it could not be retrieved from the papilla. Furthermore, the entrapped CBDS could not be disengaged from the basket, resulting in complete basket impaction (▶ **Fig. 1b**). After cutting the basket catheter's outer sheath with the basket wire left in place, a dilation balloon was gradually inflated to dilate the biliary orifice to 12 mm; however, the balloon waist did not disappear (▶ **Fig. 2**) and the impacted basket could not be extracted. Because the use of a salvage lithotripter with a noncompatible basket had a risk of wire fracture at an unpredictable site [5], emergency cholangioscopy-assisted EHL was planned. After removal of the duodenoscope leaving only the wire, the duodenoscope was immediately reinserted along the wire. Peroral cholangioscopy using the SpyGlass DS Direct Visualization System (Boston Scientific, Natick, Massachusetts, United States) was performed (▶ **Fig. 3a**). The impacted CBDS within the basket was clearly visualized (▶ **Fig. 3b**) and crushed by EHL (Lithotron EL27; Walz Elektronik, Rohrdorf, Germany) (▶ **Fig. 3c**). The fragmented CBDS and basket were successfully extracted by using a retrieval balloon catheter (▶ **Fig. 4**, ▶ **Video 1**). The postoperative period was uneventful and the patient was discharged at 4 days post-admission.



► **Fig. 2** Endoscopic papillary large balloon dilation using a balloon dilator (balloon diameter 12 mm, REN; Kaneka Medix, Osaka, Japan). The large dilation balloon was gradually inflated under fluoroscopic guidance; however, the balloon waist did not disappear (arrowhead). **a** Endoscopic image. **b** Fluoroscopic image.

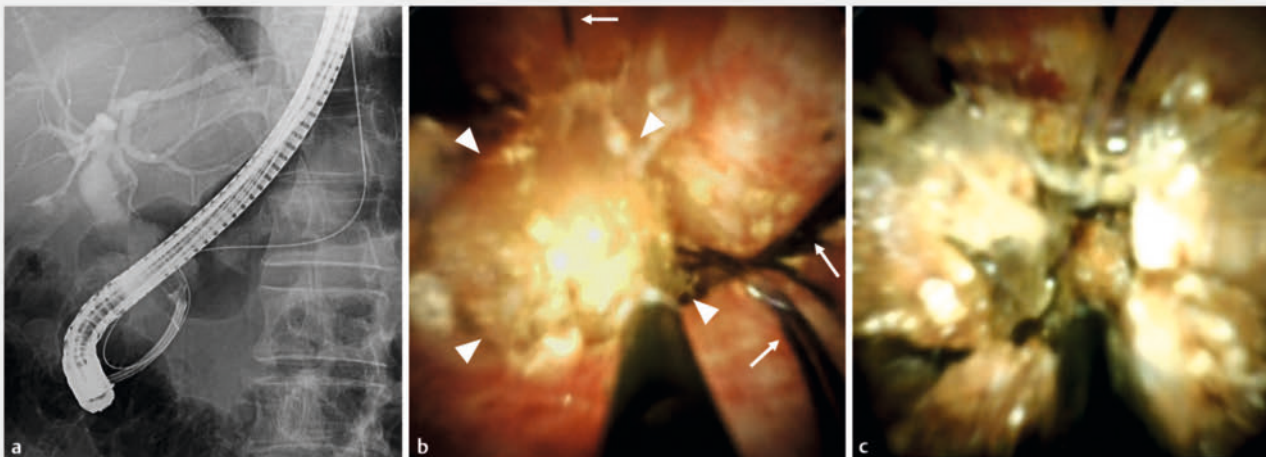
### Conflict of Interest

The authors declare that they have no conflict of interest.

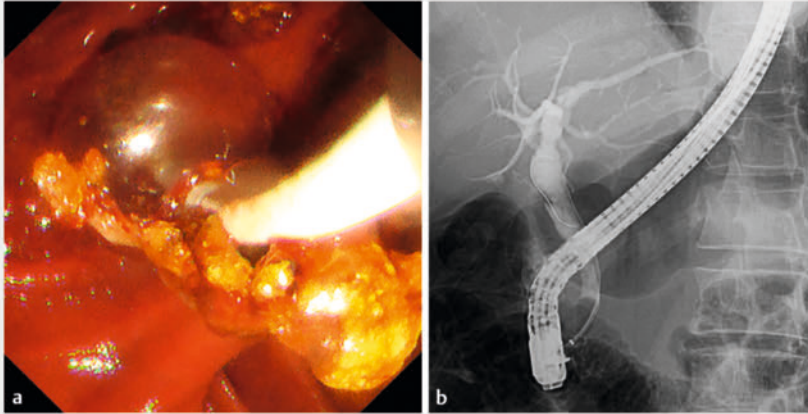
### The authors

Akane Hara<sup>1</sup>, Kosuke Minaga<sup>1</sup>, Yasuo Otsuka<sup>1</sup>, Hidekazu Tanaka<sup>1</sup>, Mamoru Takenaka<sup>1</sup>, Masatoshi Kudo<sup>1</sup>

<sup>1</sup> Department of Gastroenterology and Hepatology, Kindai University Faculty of Medicine Graduate School of Medical Sciences, Osaka-Sayama, Japan



► **Fig. 3** **a** A fluoroscopic image of the digital cholangioscope (SpyGlass DS Direct Visualization System; Boston Scientific, Natick, Massachusetts, United States) inserted within the impacted basket. **b** A cholangioscopic image of the bile duct stone (arrowheads) and basket wire (arrows). **c** Crushing of the stone by electrohydraulic lithotripsy.



► **Fig. 4** The fragmented stone successfully extracted by using a retrieval balloon catheter (Extractor ProRX; Boston Scientific). **a** Endoscopic image. **b** Fluoroscopic image.

## Bibliography

Endosc Int Open 2024; 12: E271–E273

DOI 10.1055/a-2246-6568

ISSN 2364-3722

© 2024. The Author(s).

This is an open access article published by Thieme under the terms of the Creative Commons Attribution-NonDerivative-NonCommercial License, permitting copying and reproduction so long as the original work is given appropriate credit. Contents may not be used for commercial purposes, or adapted, remixed, transformed or built upon. (<https://creativecommons.org/licenses/by-nc-nd/4.0/>)

Georg Thieme Verlag KG, Rüdigerstraße 14, 70469 Stuttgart, Germany



## Corresponding author

### Dr. Kosuke Minaga

Kindai University Faculty of Medicine  
Graduate School of Medical Sciences,  
Department of Gastroenterology and  
Hepatology, Osaka-Sayama, Japan  
kousukeminaga@yahoo.co.jp

## References

- [1] Katsinelos P, Lazaraki G, Chatzimavroudis G et al. Risk factors for therapeutic ERCP-related complications: an analysis of 2,715 cases performed by a single endoscopist. *Ann Gastroenterol* 2014; 27: 271–27324714755
- [2] Kwon CI, Song SH, Hahm KB et al. Unusual complications related to endoscopic retrograde cholangiopancreatography and its endoscopic treatment. *Clin Endosc* 2013; 46: 251–259 doi:10.5946/ce.2013.46.3.25123767036
- [3] Fukino N, Oida T, Kawasaki A et al. Impaction of a lithotripsy basket during endoscopic lithotomy of a common bile duct stone. *World J Gastroenterol* 2010; 16: 2832–2834
- [4] Katsinelos P, Fasoulas K, Beltsis A et al. Large-balloon dilation of the biliary orifice for the management of basket impaction: a case series of 6 patients. *Gastrointest Endosc* 2011; 73: 1298–1301 doi:10.1016/j.gie.2011.01.03421492853
- [5] Watson RR, Parsi MA, Aslanian HR et al. ASGE Technology Committee; Biliary and pancreatic lithotripsy devices. *VideoGIE* 2018; 3: 329–338 doi:10.1016/j.gie.2014.12.02225597420