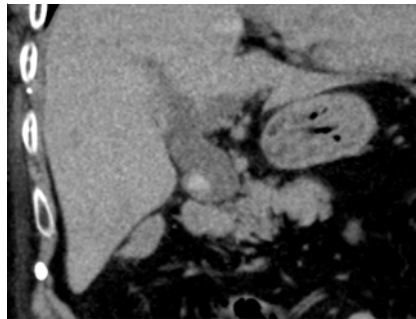


Endoscopic cystic duct remnant stone removal using peroral cholangioscopy

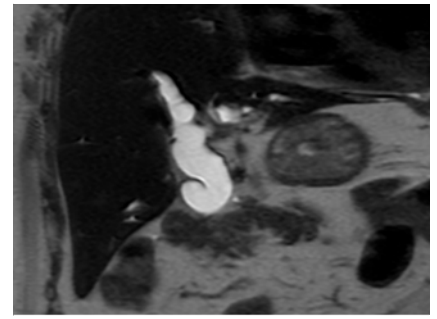


A cystic duct remnant stone is a symptom of post-cholecystectomy syndrome (PCS) reported to occur in up to 40% of patients within 2 days to 25 years after cholecystectomy [1]. Traditionally, surgery has been performed for PCS because endoscopic treatment is challenging [2]. Peroral cholangioscopy (POCS) and electrohydraulic lithotripsy (EHL) are now available for biliary stones, including cystic duct stones, which are difficult to treat with conventional procedures [3–5]. Here, we report a case of endoscopic removal of a cystic duct remnant stone using POCS, EHL, and steps targeted at its efficient removal.

An 80-year-old woman with a history of open cholecystectomy for cholelithiasis 45 years prior was admitted to our hospital owing to abdominal pain and jaundice. Computed tomography revealed a cystic duct remnant stone 2 cm in diameter (► Fig. 1). The patient underwent endoscopic biliary drainage using a plastic stent for acute cholangitis. Because removal of the cystic duct remnant stone using conventional procedures was unsuccessful, POCS (SpyGlass DS; Boston Scientific, Marlborough, Massachusetts, USA) and EHL were used (► Video 1). Fragmentation of the cystic duct remnant stone using POCS and EHL was successful; however, stone fragments in the cystic duct could not be directly removed using conventional balloon and basket catheters. Therefore, the following steps were required. First, irrigation with physiological saline while performing EHL flushed the stone fragments from the cystic duct remnant to the common bile duct (CBD), whereupon they were removed. Second, any gross stone fragments remaining in the cystic duct remnant were removed using the SpyGlass Retrieval Basket (Boston Scientific). Finally, remaining stone fragments were powdered using EHL. No adverse events occurred. Magnetic resonance



► **Fig. 1** A computed tomography image on arrival showing the cystic duct remnant stone.



► **Fig. 2** A magnetic resonance image showing no recurrence of cystic duct remnant stones 3 months after stone removal.



► **Video 1** Removal of cystic duct remnant stone achieved endoscopically using a peroral cholangioscope and electronic hydraulic lithotripsy.

imaging 3 months revealed no residual or recurrent biliary stones (► Fig. 2).

Endoscopy_UCTN_Code_TTT_1AR_2AH

Competing interests

The authors declare that they have no conflict of interest.

The authors

Junichi Kaneko¹, Masaki Takinami¹, Atsushi Tsuji¹, Masafumi Nishino¹, Yurimi Takahashi², Takanori Yamada¹

¹ Division of Gastroenterology, Iwata City Hospital, Shizuoka, Japan

² Division of Hepatology, Iwata City Hospital, Shizuoka, Japan

Corresponding author

Junichi Kaneko, MD

Division of Gastroenterology, Iwata City Hospital, 512-3 Ookubo, Iwata-shi, Shizuoka 483-8550, Japan
 Fax: +81-538-38-5050
 meganerock10@gmail.com

References

- [1] Jaunoo SS, Mohandas S, Almond LM. Post-cholecystectomy syndrome (PCS). *Int J Surg* 2010; 8: 15–17
- [2] Kar A, Gulati S, Mohammed S et al. Surgical management of cystic duct stump stone or gall bladder remnant stone. *Indian J Surg* 2018; 80: 284–287
- [3] 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
- [4] Marya NB, Martin JA, Sawas T et al. ERCP-directed electrohydraulic lithotripsy for

treatment of cystic duct and remnant gallbladder stones. *VideoGIE* 2020; 5: 300–303

- [5] Pawa R, Dorrell R, Pawa S. Endoscopic management of cystic duct stones and Mirizzi's syndrome: experience at an academic medical center. *Endosc Int Open* 2022; 10: E135–E144

Bibliography

Endoscopy 2023; 55: E251–E252
 DOI 10.1055/a-1966-0351
 ISSN 0013-726X
 published online 25.11.2022
 © 2022. 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



ENDOSCOPY E-VIDEOS

<https://eref.thieme.de/e-videos>



Endoscopy E-Videos is an open access online section, reporting on interesting cases

and new techniques in gastroenterological endoscopy. All papers include a high quality video and all contributions are freely accessible online. Processing charges apply (currently EUR 375), discounts and waivers acc. to HINARI are available.

This section has its own submission website at

<https://mc.manuscriptcentral.com/e-videos>