A stent-stone complex is a rare complication of long-term placement of biliary plastic stents [1,2]. Stones form around the proximal end of the stent, making endoscopic removal of the stent difficult. Herein we report a case of successful endoscopic removal of a stent-stone complex using peroral cholangioscopy-guided electrohydraulic lithotripsy (EHL). An 80-year-old woman was referred to our hospital for treatment of large bile duct stones (35 mm) (▶Fig. 1). Peroral cholangioscopy-guided EHL was performed; however, stones could not be completely removed, and a plastic stent was placed (▶Fig. 2). Two months after peroral cholangioscopy-guided EHL, a 30-mm stent-stone complex formed (▶Fig. 3 a). We attempted to remove the stent-stone complex with grasping forceps; however, it could not be moved, and the plastic stent broke off at the grasping site (▶Fig. 3 b). We performed EHL again under peroral cholangioscopy (SpyScope DS II; Boston Scientific, Tokyo, Japan) for stent-stone complex extraction (▶Video 1). A stent-stone complex resembling a lollipop was observed in the distal bile duct (▶Fig. 3 c). The stone was fixed by the stent; this allowed the shock waves to be applied efficiently. The time taken to crush the stones around the plastic stent was approximately 10 min. The stones were then removed using a balloon catheter (▶Fig. 3 d). Balloon cholangiography after stone evacuation confirmed complete removal of the stones (▶Fig. 3 e). The patient recovered without cholangitis or bile duct stone recurrence.

Endoscopic removal of a stent-stone complex is difficult, and forcible extraction of a large stent-stone complex can cause papillary injury or biliary perforation. Further, surgery for a stent-stone complex was considered impossible in this case. However, peroral EHL under cholangioscopy was successful.

Fig. 1 Computed tomography (CT) and magnetic resonance cholangiopancreatography (MRCP) images before the procedures. a Coronal view on CT showed a large stone in the common bile duct. b MRCP showed a defect suggestive of a 32-mm stone at the junction of the cystic duct and the common bile duct.

Fig. 2 The first electrohydraulic lithotripsy (EHL) under endoscopic retrograde cholangiopancreatography (ERCP). a ERCP showed a huge translucent filling defect in the common bile duct. b, c The presence of a yellow stone was confirmed by cholangioscopy and EHL was performed. d After EHL, the stones were removed with a balloon catheter; however, it was difficult to remove them completely.
complex [3,4] is highly invasive. In this case, EHL under peroral cholangioscopy efficiently crushed the stent-stone complex because the plastic stent served as an anchor. We believe that peroral cholangioscopy-guided EHL is an extremely useful method for stent-stone complex removal.

Endoscopy_UCTN_Code_TTT_1AR_2AH

Fig. 3 The second electrohydraulic lithotripsy (EHL) under endoscopic retrograde cholangiopancreatography (ERCP) for removal of the stent-stone complex. a The stent-stone complex was formed. b The stent was broken off during removal. c EHL was performed for stent-stone complex removal. d The stones were crushed for only approximately 10 minutes. e The stones were removed with a balloon catheter, and cholangiography confirmed that there were no residual stones.

Competing interests
The authors declare that they have no conflict of interest.

The authors
Yuta Tanimoto, Shota Harai, Mitsuharu Fukasawa, Ei Takahashi, Shinichi Takano, Nobuyuki Enomoto
First Department of Internal Medicine, Faculty of Medicine Graduate School of Medicine, University of Yamanashi, Chuo City, Japan

Corresponding author
Mitsuharu Fukasawa, MD
University of Yamanashi, Faculty of Medicine Graduate School of Medicine, First Department of Internal medicine, 1110 Shimokato, Chuo City, Yamanashi, Japan
Fax: +81-55-273-7108
fmitsu@yamanashi.ac.jp

Video 1 The procedure of electrohydraulic lithotripsy using peroral cholangioscopy for removal of a stent-stone complex.
References


Bibliography

Endoscopy
DOI 10.1055/a-1858-5028
ISSN 0013-726X
published online 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 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