Successful endoscopic lithotripsy using a new digital cholangioscope through an overtube placed by an enteroscope

A 29-year-old woman who had undergone extrahepatic bile duct resection and hepaticojejunostomy for congenital biliary dilation was admitted to our hospital with cholangitis. Magnetic resonance cholangiopancreatography revealed multiple large intrahepatic bile duct stones (Fig. 1). Most of the stones were fragmented and removed by extracorporeal shock wave lithotripsy and endoscopic mechanical lithotripsy (LithoCrush V; Olympus, Tokyo, Japan) during double-balloon endoscope-assisted endoscopic retrograde cholangiopancreatography (EI-580BT; Fujifilm, Tokyo, Japan). However, intrahepatic stones in the right posterior branch could not be removed owing to the acute angle of the duct (Fig. 2). To perform intraductal lithotripsy under direct visualization, the enteroscope was withdrawn while leaving the overtube in situ. The direct cholangioscope (SpyGlass DS Direct Visualization System; Boston Scientific Japan, Tokyo, Japan) was successfully advanced through the overtube into the right posterior branch. The intrahepatic stones were visualized (Fig. 3) and successfully fragmented by electrohydraulic lithotripsy using the Autolith EHL system and 1.9-Fr probe (Boston Scientific Japan). Finally, the cholangioscope was exchanged for the enteroscope, and fragmented stones were extracted using a balloon catheter (Fig. 4, Video 1).

Endoscopic removal of large bile duct stones remains challenging, especially in cases with surgically altered anatomy [1, 2]. Direct insertion of an enteroscope is possible in cases with a large bile duct [3–5], though this technique cannot be utilized in cases with intrahepatic stones in small bile ducts. To our knowledge, this is the first report of successful endoscopic treatment of intrahepatic bile duct stones under direct cholangioscopy in a patient with surgically altered anatomy. Although scope exchange to a direct cholangioscope through the overtube is
technically possible only when the overtube is completely straight, without any loops, as in our case (Fig. 5), this new method is an additional option for the management of intrahepatic bile duct stones after hepaticojejunostomy.

Endoscopy_UCTN_Code_TTT_1AR_2AH

Competing interests
None

The authors
Ryunosuke Hakuta, Hirofumi Kogure, Yousuke Nakai, Atsuo Yamada, Naminatsu Takahara, Suguru Mizuno, Kazuhiko Koike
Department of Gastroenterology, Graduate School of Medicine, University of Tokyo, Tokyo, Japan

Fig. 2 Endoscopic mechanical lithotripsy and extracorporeal shock wave lithotripsy fragmented the stones. Intrahepatic bile duct stones in the right posterior branch (arrow) could not be removed due to the acute angle of the duct.

Fig. 3 Cholangioscopic view of bile duct stone in the right posterior branch.

Fig. 4 Complete stone removal in the right posterior branch was confirmed by cholangiogram using a balloon catheter (a) and computed tomography (b).

Fig. 5 The enteroscope and overtube were completely straight without any loops.
Corresponding author

Yousuke Nakai, MD, PhD
Department of Gastroenterology, Graduate School of Medicine, The University of Tokyo, 7-3-1 Hongo Bunkyo-ku, Tokyo, Japan 113-8655
Fax: +81-3-5800-9801
ynakai-tky@umin.ac.jp

References


Bibliography

DOI https://doi.org/10.1055/a-0640-2817
Published online: 2018
Endoscopy
© Georg Thieme Verlag KG
Stuttgart · New York
ISSN 0013-726X

ENDOSCOPY E-VIDEOS
https://eref.thieme.de/e-videos

Endoscopy E-Videos is a free 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.

This section has its own submission website at https://mc.manuscriptcentral.com/e-videos