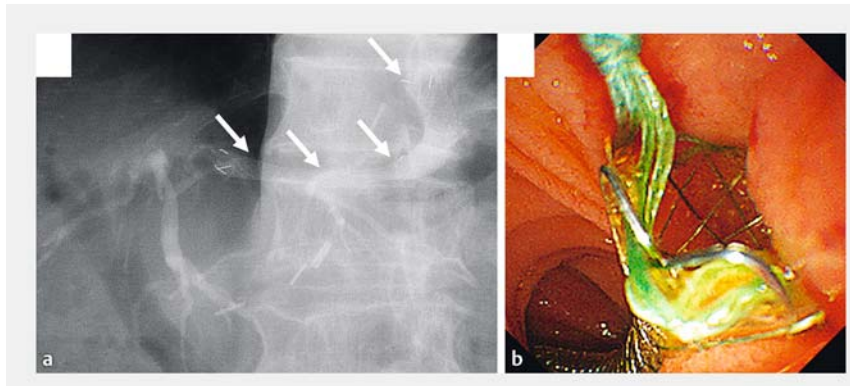


Electronic hydraulic lithotripsy by antegrade digital cholangioscopy through endoscopic ultrasound-guided hepaticojejunostomy



► **Fig. 1** Fluoroscopic image showing a common bile duct stone (arrowhead) and balloon dilator (arrows).

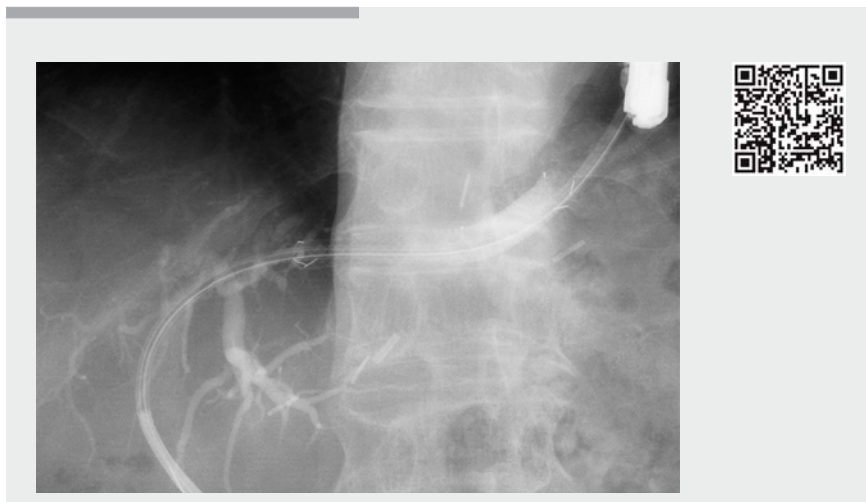


► **Fig. 2** Stent deployment between the intrahepatic bile duct and the Roux-en-Y jejunum (arrows). **a** Fluoroscopic image. **b** Endoscopic image.

This report describes antegrade electronic hydraulic lithotripsy (Lithotron EL 27; Walz Elektronik, Rohrdorf, Germany) using a digital peroral cholangioscope (SpyGlass DS System; Boston Scientific, Marlborough, Massachusetts, USA) [1,2] through an endoscopic ultrasound (EUS)-guided hepaticojejunostomy route for common bile duct (CBD) stones (► **Video 1**).

A 77-year-old man, who underwent total gastrectomy with a Roux-en-Y procedure for gastric cancer, presented with cholangitis caused by CBD stones. Endoscopic transpapillary drainage was attempted, but the scope could not be inserted into the ampulla; therefore, EUS-guided hepaticojejunostomy was performed.

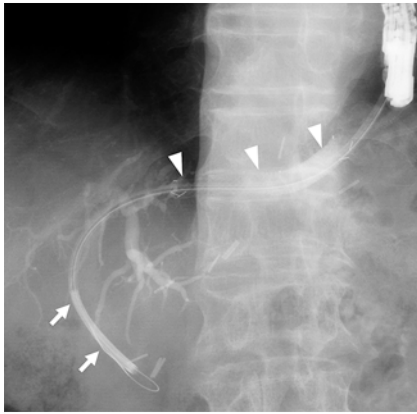
From the Roux-en-Y jejunum, the dilated intrahepatic bile duct was punctured with a 19-gauge needle under EUS. After guidewire insertion toward the distal bile duct, the puncture site was dilated using a balloon dilator (diameter 4 mm, REN; Kaneka Medix, Osaka, Japan) (► **Fig. 1**). A covered metal stent (diameter 8 mm, length 8 cm, Niti-S; Taewoong Medical, Gyeonggi-do, South Korea) was inserted between the intrahepatic bile duct and the Roux-en-Y jejunum (► **Fig. 2**). The following day, the patient's cholangitis was



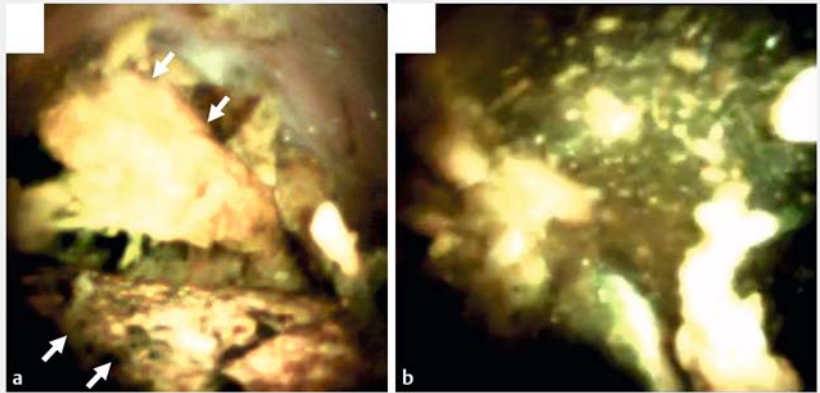
► **Video 1** Antegrade electronic hydraulic lithotripsy using a digital peroral cholangioscope through an endoscopic ultrasound-guided hepaticojejunostomy fistula. This novel method could become a rescue procedure when the conventional transpapillary approach is unsuccessful.

markedly improved, and he was discharged 3 days after surgery. The patient was re-admitted to our hospital 4 weeks later to continue treatment for CBD stones. The cholangioscope was inserted over the guidewire through the metal stent (► **Fig. 3**), and the CBD stones were revealed by cholangioscopy (► **Fig. 4a**). The stones were crushed by elec-

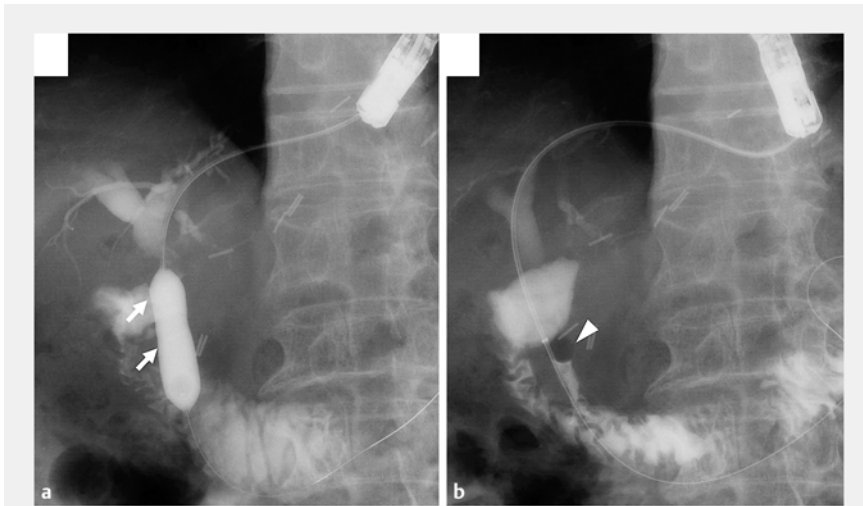
tronic hydraulic lithotripsy (► **Fig. 4b**). Subsequently, the metal stent was removed and a balloon dilator was inserted into the fistula toward the ampulla and dilated up to 12 mm (► **Fig. 5a**). The CBD stones were pushed out into the digestive tract in an antegrade fashion using a balloon catheter (► **Fig. 5b**). Finally, a single-pigtail plastic stent (7Fr, 20 cm length)



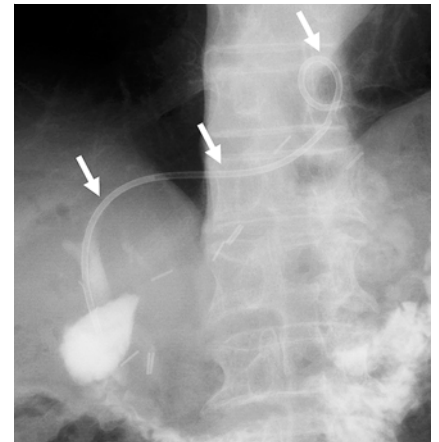
► **Fig. 3** Insertion of the digital peroral cholangioscope (arrows) over the guide-wire through the metal stent (arrow-heads).



► **Fig. 4** Treatment of common bile duct (CBD) stones. **a** Cholangioscopic view showing CBD stones (arrows). **b** Crushing of CBD stones by electronic hydraulic lithotripsy.



► **Fig. 5** Removal of common bile duct (CBD) stones. **a** Fluoroscopic image showing endoscopic papillary balloon dilation (arrows). **b** Use of a balloon catheter (arrowhead) to push CBD stones into the digestive tract in an antegrade manner.



► **Fig. 6** Fluoroscopic image showing deployment of a single-pigtail plastic stent between the common bile duct and the Roux-en-Y jejunum (arrows).

[3] was deployed between the CBD and the Roux-en-Y jejunum (► **Fig. 6**). The patient resumed eating 4 days after surgery with no adverse effects, and was discharged 7 days after surgery.

Endoscopy_UCTN_Code_TTT_1AR_2AH

Competing interests

None

The Authors

Yasuo Otsuka, Ken Kamata, Mamoru Takenaka, Kosuke Minaga, Hidekazu Tanaka, Masatoshi Kudo

Department of Gastroenterology and Hepatology, Kindai University School of Medicine, Osaka-Sayama, Japan

Corresponding author

Ken Kamata, MD, PhD

Department of Gastroenterology and Hepatology, Kindai University Faculty of Medicine, 377-2 Ohno-Higashi, Osaka-Sayama, 589-8511, Japan
 Fax: +81-72-3672880
 ky11@leto.eonet.ne.jp

References

- [1] Navaneethan U, Hasan MK, Kommaraju K et al. Digital, single-operator cholangiopancreatography in the diagnosis and management of pancreatobiliary disorders: a multi-center clinical experience (with video). *Gastrointest Endosc* 2016; 84: 649–655
- [2] Tanaka R, Itoi T, Honjo M et al. New digital cholangiopancreatography for diagnosis and therapy of pancreaticobiliary diseases (with videos). *J Hepatobiliary Pancreat Sci* 2016; 23: 220–226
- [3] Umeda J, Itoi T, Tsuchiya T et al. A newly designed plastic stent for EUS-guided hepaticogastrostomy: a prospective preliminary feasibility study (with videos). *Gastrointest Endosc* 2015; 82: 390–396

Bibliography

DOI <https://doi.org/10.1055/s-0043-119971>
Published online: 9.10.2017
Endoscopy 2017; 49: E316–E318
© 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>