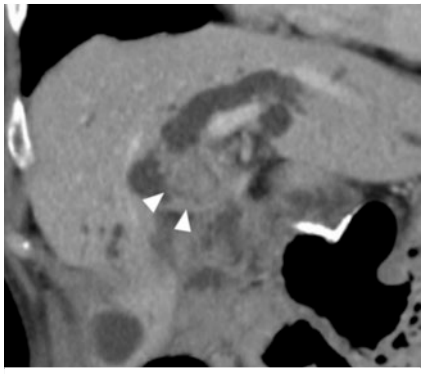
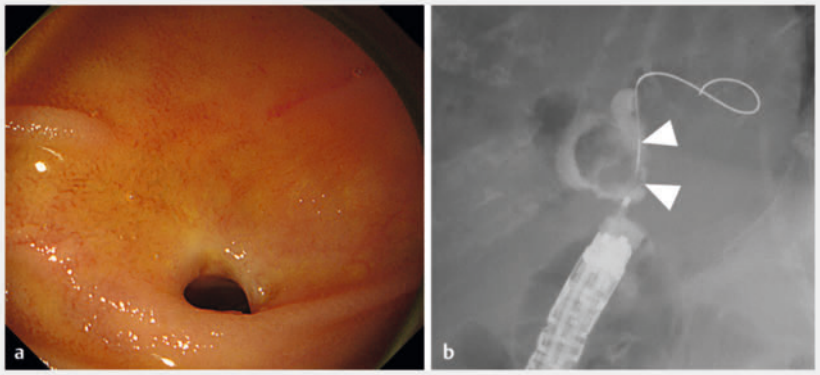
Thieme

# Direct electrohydraulic lithotripsy with a novel peroral cholangioscope through the overtube for surgically-altered anatomy

OPEN ACCESS



▶ **Fig. 1** Computed tomography in a 73-year-old patient with Roux-en-Y anatomy showed a 20-mm choledocholithiasis in the hilar bile duct (white arrowheads).




▶ **Fig. 2** **a** Single-balloon enteroscopy-assisted endoscopic retrograde cholangiopancreatography enabled deep insertion and confirmation of a slight stricture of a choledochojejunostomy anastomosis. **b** Cholangiography showed a 20-mm defect (white arrowheads).

Endoscopic management of choledocholithiasis in patients with surgically altered anatomy is challenging and likely to be difficult [1,2]. Although the mother–baby type of peroral cholangioscopy is a useful modality, there are some limitations when using the mother scope, related to the working channel diameter and extended scope length [3,4]. In this video, we present a direct electrohydraulic lithotripsy (EHL) using a novel type of cholangioscope without a mother scope in a patient with Roux-en-Y reconstruction.

The patient was a 73-year-old woman with a history of subtotal stomach-preserving pancreaticoduodenal resection for pancreatic cancer 5 years previously. The patient had a history of endoscopic treatment of a large common bile duct stone, but complete stone extraction was difficult even after several endoscopic procedures. The stone was accompanied by recurrent liver dysfunction and obstructive jaundice. Computed tomography showed a stone with high attenuation in the hilar bile duct (▶ **Fig. 1**). Stenosis of the choledochojejunal anastomosis was confirmed by balloon-assisted enteroscopy, and cholangiography showed a defect of almost 20 mm in size (▶ **Fig. 2**). The enteroscope was removed leaving the overtube (ST-SB1S, outer diameter 13.2 mm, length 960 mm; Olympus, Tokyo, Japan) and stiff guidewire in place, and a novel cholangioscope (EyeMax, 11 Fr; Micro-Tech, Nanjing, China) (▶ **Fig. 3**) was directly inserted into the overtube (▶ **Video 1**). The novel cholangioscope combined good pushability and flexibility, which enabled easy passage through the overtube bends. EHL (Autolith Touch; Boston Scientific, Marlborough, USA) without a mother scope was initiated. The large-diameter channel (1.8 mm) simplified suction and water delivery during the procedure, with an

▶ **Fig. 3** The novel direct cholangioscope has a diameter of 11 Fr and a 1.8-mm working channel (EyeMax; Micro-Tech, Nanjing, China).

▶ **Video 1** Direct electrohydraulic lithotripsy (EHL) using a novel type of direct cholangioscope, without a mother scope, in a patient with surgically altered gastrointestinal anatomy.

excellent endoscopic view. It was possible to crush all the stones in one session, and we used a basket and balloon catheter to finally succeed in performing a normal complete stone extraction.

Direct EHL with the new peroral cholangioscope proved beneficial for the management of challenging bile duct stone in a patient with altered gastrointestinal anatomy.

Endoscopy_UCTN_Code_TTT_1AR_2AH

## Conflict of Interest

The authors declare that they have no conflict of interest.

## The authors

**Kosuke Hiroe[1], Shuhei Shintani[1], Takuya Okamoto[1], Hidenori Kimura[2], Takaaki Eguchi[3], Yoshihisa Tsuji[3], Osamu Inatomi[1]**

1 Medicine, Shiga University of Medical Science, Otsu, Japan
2 Endoscopy, Shiga University of Medical Science, Otsu, Japan
3 General Medicine, Shiga University of Medical Science, Otsu, Japan

## Corresponding author

**Shuhei Shintani, MD, PhD**
Department of Medicine, Shiga University of Medical Science, Seta Tsukinowa, Otsu 520-2192, Japan
ss0513@belle.shiga-med.ac.jp

## References

[1] Shimatani M, Hatanaka H, Kogure H et al. Diagnostic and therapeutic endoscopic retrograde cholangiography using a short-type double-balloon endoscope in patients with altered gastrointestinal anatomy: a multicenter prospective study in Japan. Am J Gastroenterol 2016; 111: 1750–1758
[2] Tanisaka Y, Mizuide M, Fujita A et al. Competence development of trainees performing short-type single-balloon enteroscopy-assisted endoscopic retrograde cholangiopancreatography in patients with surgically altered anatomy. J Hepatobiliary Pancreat Sci 2022; 29: 1316–1326
[3] Tonozuka R, Itoi T, Sofuni A et al. Novel peroral direct digital cholangioscopy-assisted lithotripsy using a monorail technique through the overtube in patients with surgically altered anatomy (with video). Dig Endosc 2019; 31: 203–208
[4] Tanisaka Y, Ryozawa S, Mizuide M et al. Analysis of the factors involved in procedural failure: Endoscopic retrograde cholangiopancreatography using a short-type single-balloon enteroscope for patients with surgically altered gastrointestinal anatomy. Dig Endosc 2019; 31: 682–689

## Bibliography

Endoscopy 2024; 56: E644–E645
**DOI** 10.1055/a-2362-0579
**ISSN** 0013-726X

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