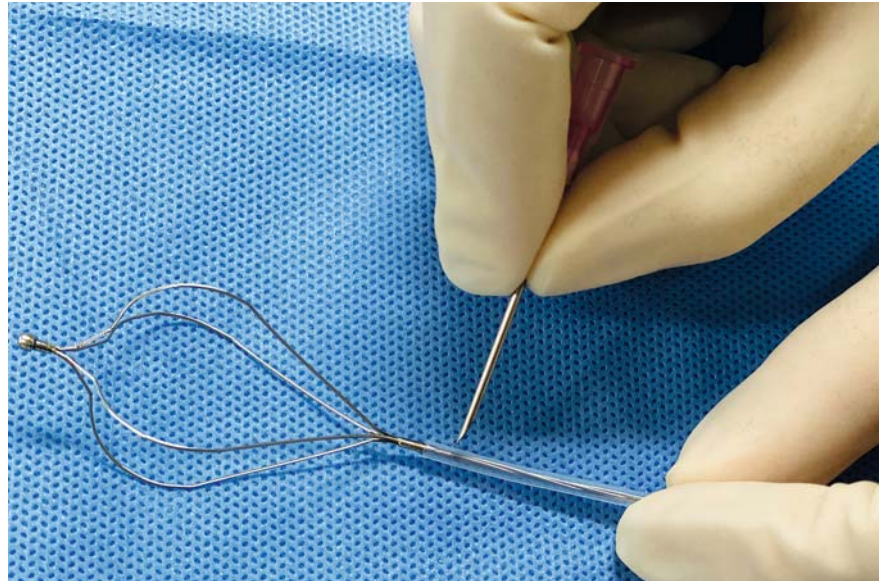


Improved wire-guided basket for intrahepatic stone extraction in a patient after pancreatoduodenectomy

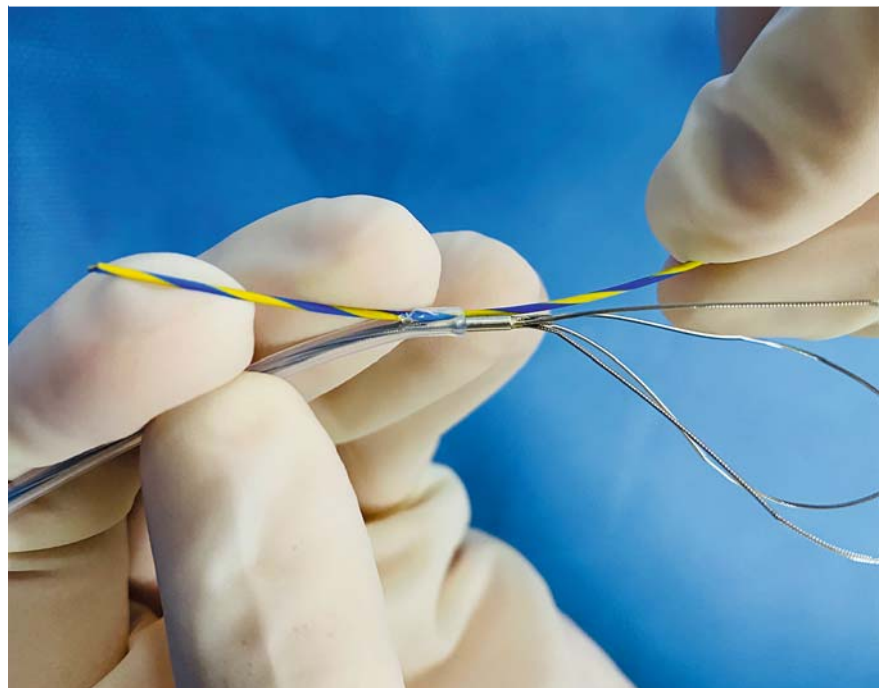


► **Fig. 1** Magnetic resonance cholangiopancreatography suggested stones in the common and left hepatic duct (red arrow) with proximal intrahepatic bile duct dilatation.

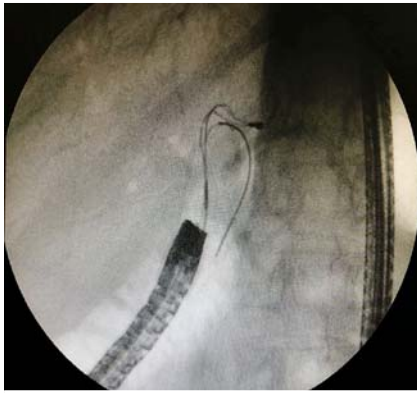
A 61-year-old man with symptoms of chills and high fever had undergone pancreatoduodenectomy in 2009 because of pancreatic serous cystadenoma. Magnetic resonance cholangiopancreatography suggested stones in the common and left hepatic duct (► **Fig. 1**). The type of the gastrointestinal reconstruction was ascertained from surgical records, and we used a cap-assisted colonoscope (PCF-PQ260; Olympus Medical Systems, Tokyo, Japan) for endoscopic retrograde cholangiopancreatography (ERCP). The removal of the common hepatic duct stones followed the ERCP sequence: intubation to the afferent limb, biliary cannulation, balloon dilation of the distal bile duct, and balloon-assisted stone extraction. When the left intrahepatic duct stones could not be removed using to this method, we carried out wire-guided cannulation using an improved single-lumen stone extraction basket, in which a hole was made with the tip of a needle (► **Fig. 2**) to allow it to be advanced over the guidewire (► **Fig. 3**) into the desired segmental duct (► **Fig. 4**). The stones were engaged and dragged into the intestinal tract without removing the guidewire (► **Video 1**). This pro-



► **Fig. 2** The 7-Fr catheter of the basket (Vedkang; Jiangsu, China) was dug out with 1.2-mm needle from a 20-ml sterile syringe.



► **Fig. 3** The catheter was passed over a 0.035-inch guidewire (Vedkang) and advanced into the endoscope.



► **Fig. 4** The wire-guided basket placed into the segment and opened with the guidewire in the desired intrahepatic duct.

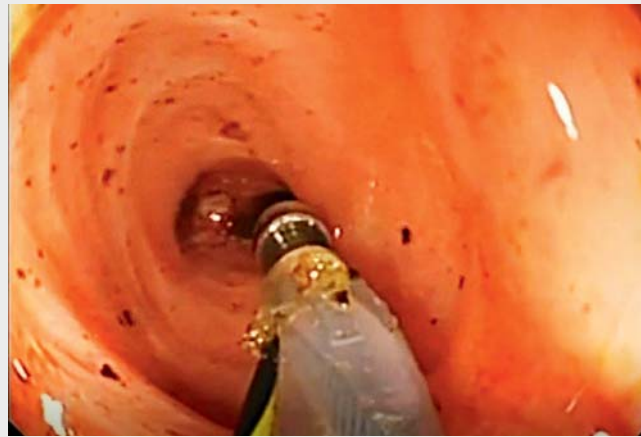
cess was repeated until complete removal of the stones was accomplished. The patient was discharged on the 2nd day after the operation. During the following 3 weeks, there were no abnormal symptoms.

Endoscopic extraction of intrahepatic duct stones with conventional stone retrieval baskets is sometimes difficult [1], especially in patients with surgically altered anatomy [2]. Understanding the reconstruction that has been carried out helps endoscopists to select the appropriate endoscope and achieve biliary access [3,4]. Intrahepatic duct stone removal can be difficult because of altered anatomy as well as the limitations of stone extraction devices [2]. We offer here an improvement of the single-lumen-type basket that can be used in combination with a guidewire; it is not as rigid as the double-lumen or any other attached types [5]. Its use in our center proves that it is safe, and we think it is an easy and cheap alternative for use in developing countries in patients with intrahepatic duct stones. Prospective randomized controlled trials are warranted in terms of safety, efficacy, and cost effectiveness.

Endoscopy_UCTN_Code_TTT_1AR_2AK

Competing interests

The authors declare that they have no conflict of interest.



► **Video 1** Extraction of left main intrahepatic duct stones using an improved wire-guided basket.

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