Peroral cholangioscopy-guided lithotripsy using a novel thin cholangioscope under balloon enteroscopy for Roux-en-Y anastomosis

Stone extraction using endoscopic retrograde cholangiopancreatography (ERCP) is less invasive than surgical procedures. However, stone extraction in patients with surgically altered anatomy, such as those who have undergone a Roux-en-Y procedure, is challenging. Although balloon enteroscopy is useful for such cases, there is still room for improvement [1, 2]. Peroral cholangioscopy (POCS)-guided lithotripsy can aid in the extraction of stones that are difficult to remove [3, 4]. However, performing POCS-guided lithotripsy under balloon enteroscopy is difficult because cholangioscopes have an approximate diameter of 10 Fr and cannot pass through the forceps channel of the balloon enteroscope. This report describes a patient with a Roux-en-Y anastomosis who was successfully treated with POCS-guided lithotripsy using a novel thin cholangioscope under balloon enteroscopy.

A 51-year-old woman who had previously undergone a diversion operation and hepaticojejunostomy with Roux-en-Y for congenital biliary dilatation 7 years earlier was referred to our center. Computed tomography revealed large stones in the intrahepatic bile duct (Fig. 1). Consequently, we performed ERCP using a short-type single-balloon enteroscope (SIF-H290; Olympus, Tokyo, Japan) with a working length of 152 cm and a working channel with a diameter of 3.2 mm [1, 2]. Additionally, we performed POCS-guided lithotripsy using a thin cholangioscope (eyeMAX; Micro-Tech, Nanjing, China) with a length of 219 cm and diameter of 9 Fr [5] (Fig. 2, Video 1) as complete stone extraction was difficult without POCS. Cholangiography revealed large stones in the intrahepatic bile duct (Fig. 3). Subsequently, POCS was performed using a thin cholangioscope, revealing multiple large stones in the intrahepatic bile duct (Fig. 4a). POCS-guided lithotripsy was performed while main-
Attaining a clear field of view (▶ Fig. 4b, c). Successful stone fragmentation was achieved (▶ Fig. 4d), followed by complete stone extraction (▶ Fig. 5). The thin cholangioscope was effective for POCS-guided lithotripsy even though a balloon enteroscope was used. This novel thin cholangioscope can improve the success rate of stone extraction in patients with a surgically altered anatomy.

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**Conflict of Interest**

The authors declare that they have no conflict of interest.

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