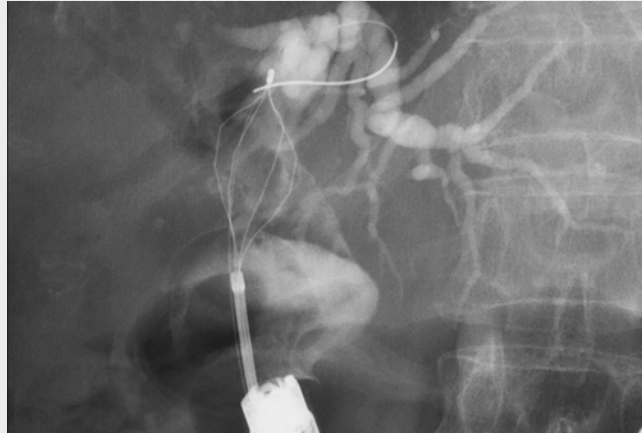


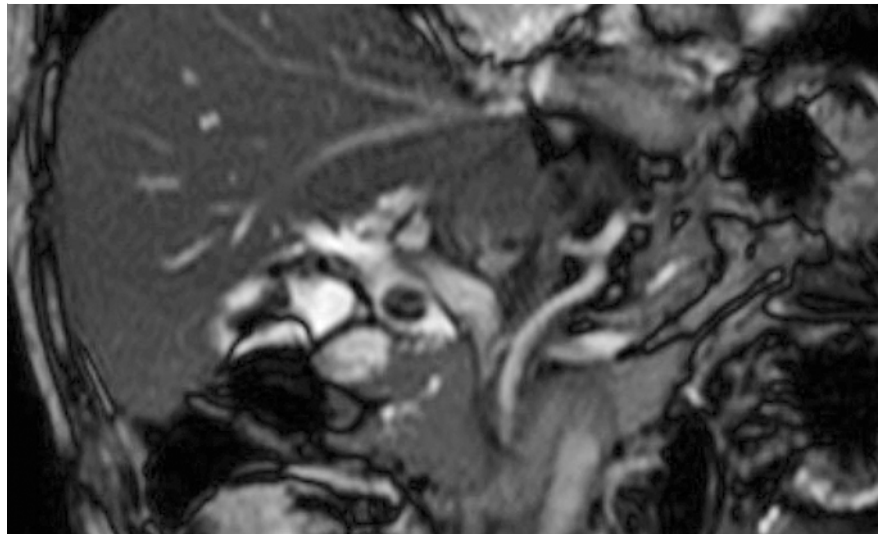
## A rescue approach using a neo papilla for choledocholithiasis in patient with benign duodenal stricture

In the management of biliary stones, transpapillary stone extraction during endoscopic retrograde cholangiopancreatography (ERCP) has been established as the standard treatment [1]. The procedure is occasionally difficult, especially in cases with benign stricture of the duodenum caused by groove pancreatitis [2]. Stone extraction under percutaneous transhepatic biliary drainage and surgery are conventionally performed as alternative methods after unsuccessful ERCP [3]. However, both methods are invasive and reduce patients' quality of life. Here, we present a successful case of biliary stone extraction achieved via creation of a neo papilla (▶ **Video 1**).

A 78-year-old man underwent gastrojejunostomy for the duodenal stricture associated with groove pancreatitis and later developed obstructive jaundice due to biliary stone (▶ **Fig. 1**). An attempted ERCP failed due to an inaccessible papilla. A neo papilla was created at the duodenal bulb by endoscopic ultrasound-guided choledochoduodenostomy with plastic stent placement to decompress the bile duct (▶ **Fig. 2**). Biliary stone extraction was then attempted 1 month later via the neo papilla. The plastic stent was removed using a stent retriever (Soehendra Stent Retriever; Cook Medical, Bloomington, Indiana, USA) and a cholangiogram confirmed the existence of the stone. The neo papilla was dilated up to 8 mm using a balloon catheter (ZARA; Century Medical, Tokyo, Japan) (▶ **Fig. 3**). The stones were then crushed using a mechanical lithotripter (XEMEX Crusher Catheter; Zeon Medical, Tokyo, Japan), and stone fragments were successfully removed though the neo papilla (▶ **Fig. 4**, ▶ **Fig. 5**). A nasobiliary drainage tube was then placed in the bile duct to wash away the small residual stone fragments. No adverse events occurred for the patient. Extraction of biliary stones via a created neo papilla appears to be safe and achievable, because the matured fistula allowed



▶ **Video 1** An alternative method after failed transpapillary stone extraction: a neo papilla was created by an endoscopic ultrasound-guided choledochoduodenostomy, followed by stone extraction via the newly created neo papilla.



▶ **Fig. 1** Magnetic resonance imaging showed a stone in the common bile duct.

the use of larger devices [4]. This technique may be a feasible alternative to rescue transpapillary stone extraction in patients with benign stricture of the duodenum.

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### Competing interests

None



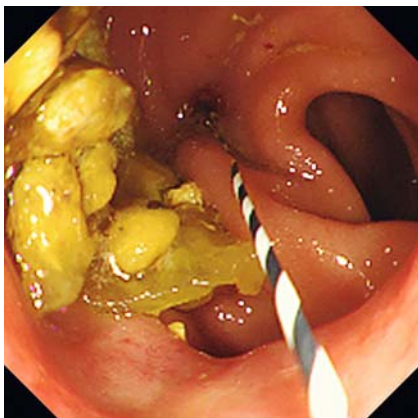
► **Fig. 2** Endoscopic ultrasound-guided choledochoduodenostomy was performed with plastic stent placement to decompress the bile duct.



► **Fig. 3** The neo papilla was dilated using a balloon catheter.



► **Fig. 4** The larger stones were crushed using the mechanical lithotripter.



► **Fig. 5** Stone fragments were successfully removed through the neo papilla.

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