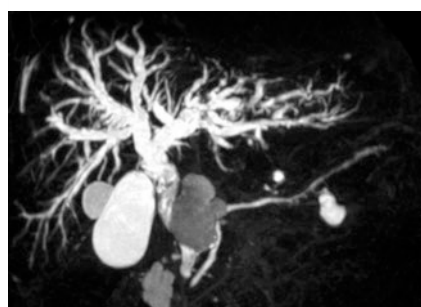
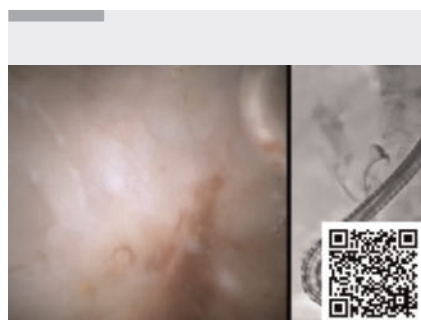


Pancreatic pseudocyst with biliary fistula diagnosed using a novel slim peroral cholangioscope

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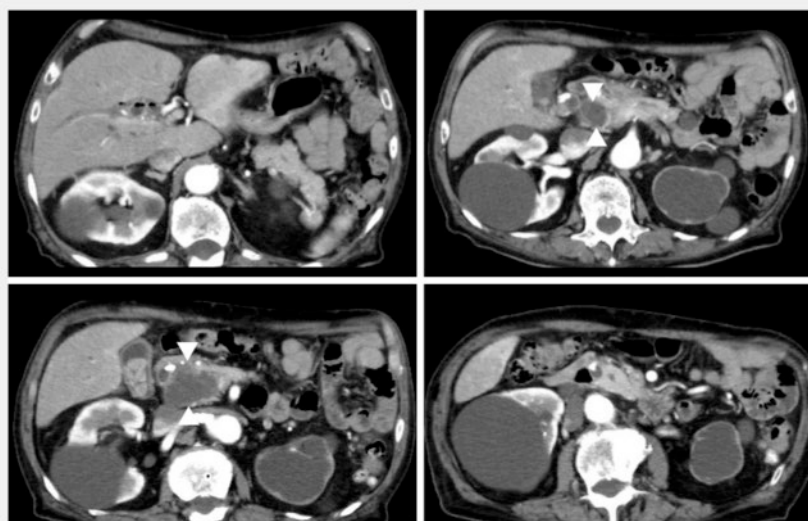
► **Fig. 1** Magnetic resonance imaging showed a large cystic lesion at the pancreatic head and multiple stones at the perihilar bile duct.



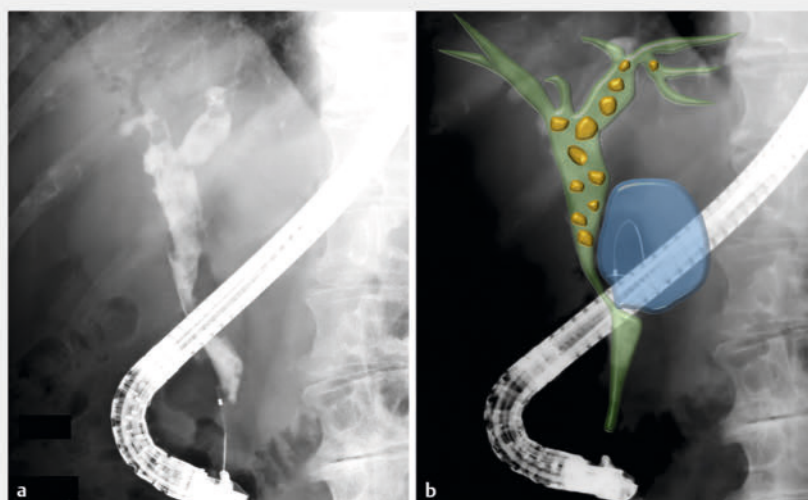
► **Video 1** A novel slim cholangioscope, 9-Fr eyeMax (Micro-Tech, Nanjing, China), was useful for the diagnosis of pancreatic pseudocyst with biliary fistula.

A novel slim cholangioscope (eyeMax 9-Fr; Micro-Tech, Nanjing, China) has been developed in recent years [1, 2]. We report a case of pancreatic pseudocyst with biliary fistula diagnosed using this novel cholangioscope (► **Video 1**).

An 88-year-old man was referred to our hospital because of multiple bile duct stones with biliary stricture. Magnetic resonance imaging and computed tomography showed a large cystic lesion at the pancreatic head (► **Fig. 1**, ► **Fig. 2**). We performed endoscopic retrograde cholangiopancreatography for stone removal and diagnosis of the stricture.



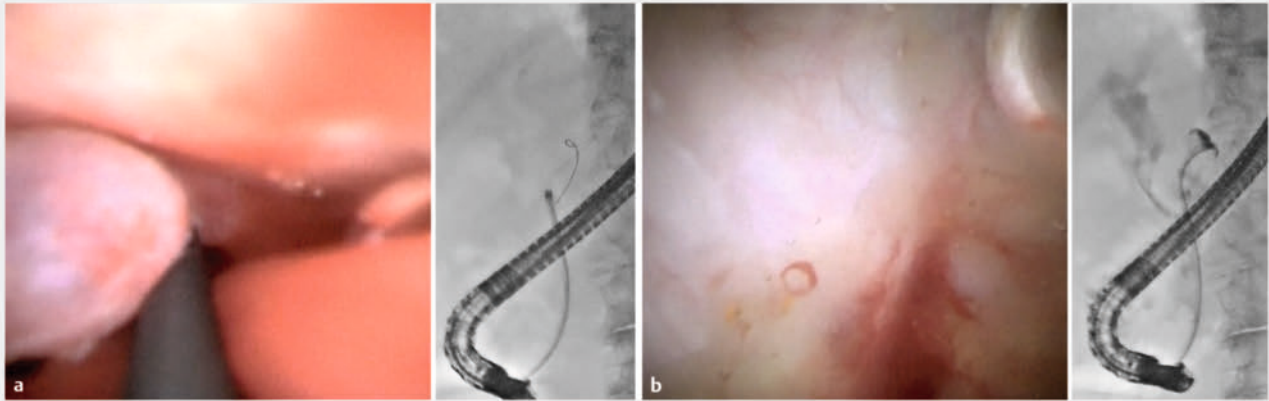
► **Fig. 2** Computed tomography showed that bile duct dilation was improved by a biliary stent. However, the pancreatic cyst had not decreased in size (arrowheads).



► **Fig. 3** Cholangiography images. **a** Cholangiography showed a compressed distal bile duct. **b** A guidewire was advanced into the cyst, revealing the fistula.

Initial cholangiography showed the compressed distal bile duct and multiple stones filling the perihilar bile duct. A guidewire was advanced into the cyst lesion, and a fistula between the bile

duct and pancreatic cyst was confirmed (► **Fig. 3**). EyeMax (9-Fr) was inserted to evaluate the stricture and fistula (► **Fig. 4**). The cholangioscope was easily advanced through the stricture, and mul-



► **Fig. 4** Cholangioscopy images. **a** The cholangioscope was advanced into the cyst through the biliary fistula. **b** Findings suggestive of a neoplastic lesion were not observed in the inner wall of the cyst.

multiple bile duct stones were observed. As the stricture was not too narrow, stone removal was attempted. Stones were removed using a basket catheter after endoscopic papillary large balloon dilation. The cholangioscope was reinserted, and complete stone removal was confirmed. Subsequently, a guidewire was placed into the pancreatic cyst through the biliary fistula, and the cholangioscope was advanced toward the guidewire. Cystography revealed no connection between the cyst and pancreatic duct. Findings suggestive of a neoplastic lesion were not observed in the inner wall of the cyst. Biopsy of the cyst wall and the biliary fistula was performed via direct viewing. Pathological results showed no epithelial tissues; therefore, the diagnosis was a pancreatic pseudocyst with a biliary fistula. The cyst decreased in size during the month following stone removal. Pancreatic pseudocyst with biliary fistula is an extremely rare condition [3–5]. To the best of our knowledge, this is the first report of the fistula being confirmed using cholangioscopy.

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Conflict of Interest

The authors declare that they have no conflict of interest.

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