Fibrous-membrane resection for hepaticojejunostomy anastomosis obstruction under enteroscopic and cholangioscopic double views

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Obstruction of hepaticojejunostomy anastomosis (HJA) is a potential adverse event of pancreatoduodenectomy (PD). An occluded HJA is treated by percutaneous transhepatic biliary drainage (PTBD) or surgical/endoscopic procedures.[1,2] Endoscopic procedures are less invasive than surgical treatment[3] and are compatible with a larger variety of devices than PTBD. However, in cases of occluded HJA, it is extremely difficult to reopen the anastomosis via endoscopy when the membrane is thick and hard because the direction of opening is unknown.

We describe a case involving a 57-year-old man who presented to our hospital with a high fever of 39.4°C (102.9°F). At the age of 56 years, he was diagnosed with a pancreatic head gastrinoma and had undergone PD. There was no other remarkable medical history. Laboratory tests revealed elevated liver enzymes (aspartate aminotransferase, 176 U/L; alanine aminotransferase, 155 U/L). CT showed slight dilation of the intrahepatic bile duct (IHBD) (Fig. 1). Because of the patient's history of PD, cholangitis due to HJA obstruction was considered.

ERCP was planned with a short-type double-balloon endoscope (sDBE; EI-580BT; Fujifilm, Tokyo, Japan) at the fluoroscopy room. The sDBE was inserted into the HJA; however, the HJA was completely occluded by a fibrous membrane, and we could not insert the cannula to the IHBD (Fig. 2). Moreover, we were unable to resect the occlusion because the opening direction was unknown and there was a risk of perforation. The patient required biliary drainage for treating cholangitis; therefore, PTBD using a 10F drainage tube was performed in the same session by the same clinician.

One week after PTBD, treatment of the occluded HJA was scheduled again. First, we attempted to pass the HJA using a guidewire via the PTBD route; however, the guidewire could not pass. The occluded HJA seemed thick and hard, and resection of the fibrous membrane required the use of a needle precut knife. Therefore, we planned fibrous membrane resection under double-endoscopic views using an sDBE (for the intestine side) and a cholangioscope (for the IHBD side). The PTBD route was already dilated to 10F, and a SpyGlass DS (Boston Scientific, Marlborough, Mass, USA) was successfully inserted via this route. The sDBE was also inserted and reached the occluded HJA.

Light from the IHBD could be detected from the side of the intestine when the sDBE light was turned off (Fig. 3A). The precut knife was directed toward the cholangioscope light, and we were able to detect the tip of the needle of the precut knife on the cholangioscope view (Fig. 3B). Fibrous membrane resection could be performed safely

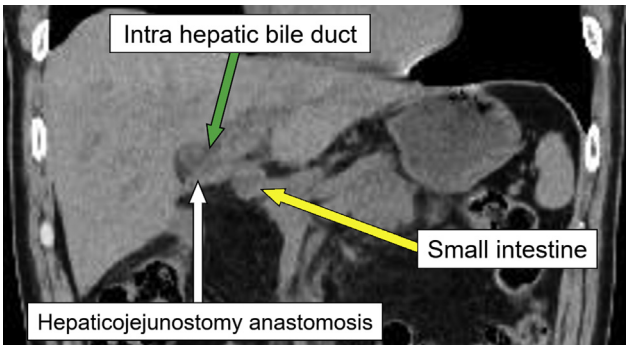

Figure 1. CT shows slight dilation of the intrahepatic bile duct. The cholangitis was thought to be caused by obstruction of the hepaticojejunostomy anastomosis.

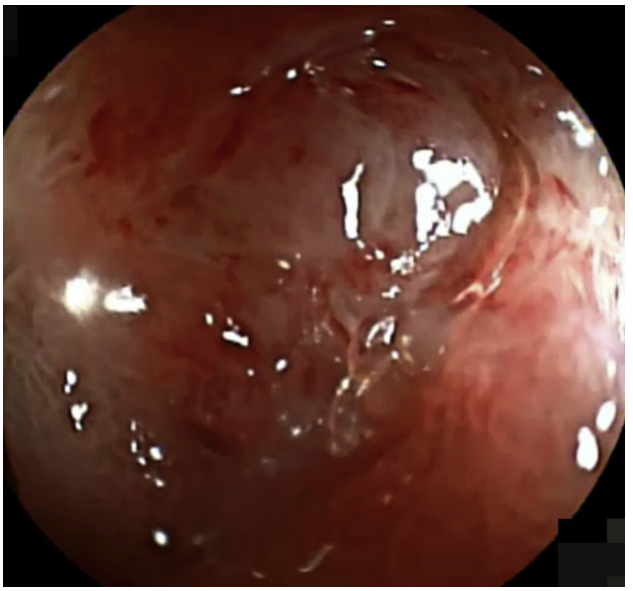

Figure 2. Image of the hepaticojejunostomy anastomosis obstructed by a fibrous membrane 1 year after pancreatoduodenectomy.

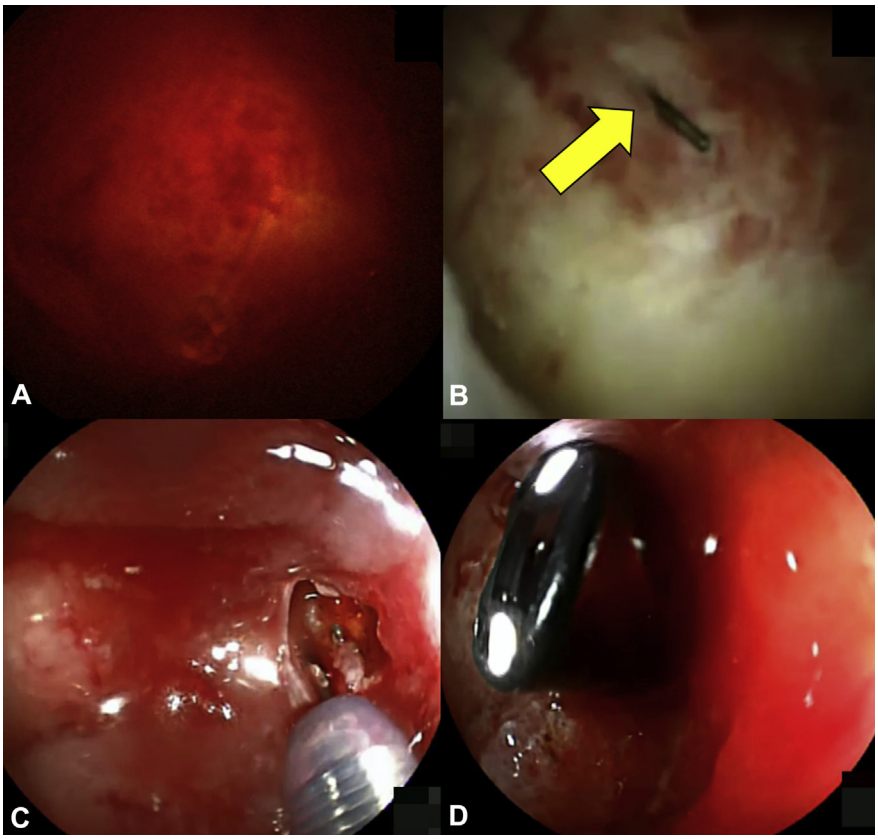

Figure 3. A, Light from the cholangioscope is faintly visible at the fibrous membrane obstructing the hepaticojejunostomy anastomosis. **B,** Cholangioscopy enables detection of the tip of the precut needle knife *(arrow)*. **C,** Fibrous membrane resection is performed using a precut needle knife. **D,** The occluded hepaticojejunostomy anastomosis reopened after fibrous membrane resection. The cholangioscope can be passed through to dilate the anastomosis.

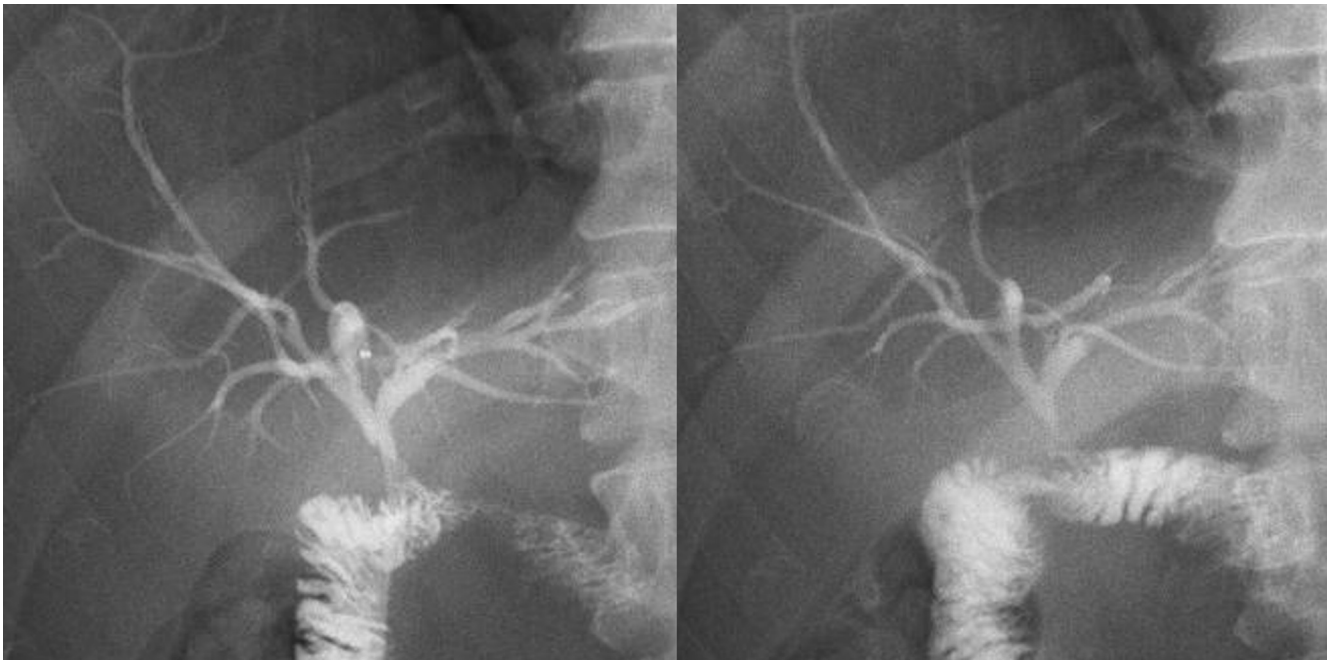

Figure 4. An endoscopic nasobiliary drainage tube is placed into the hepatic bile duct. A few days after the procedure, cholangiography was performed via the endoscopic nasobiliary drainage route, and the contrast medium was smoothly drained. Because the anastomosis was considered to be sufficiently dilated, we decided to follow the patient without placing a stent. The patient experienced no adverse effects or relapse of the obstruction for more than 1 year after the procedure.

under direct cholangioscope observation (Fig. 3C; Video 1, available online at www.VideoGIE.org). After resection, we were able to pass the cholangioscope and dilate the HJA (Fig. 3D). The guidewire also could pass the HJA, and 8-mm balloon dilation was performed. An endoscopic nasobiliary drainage (ENBD) tube was placed into the IHBD in the same session.

A few days later, cholangiography was performed via the ENBD route, and the contrast medium smoothly drained from the IHBD. Because the HJA was thought to be sufficiently dilated, we decided to observe the patient without placing a biliary stent (Fig. 4). The patient did not have any adverse events, and there was no relapse of obstruction during more than 1 year of follow-up.

In conclusion, fibrous membrane resection with double-endoscopic views enables safe and effective reopening of an occluded HJA.

DISCLOSURE

All authors disclosed no financial relationships.

Abbreviations: HJA, hepaticojejunostomy anastomosis; IHBD, intrahepatic bide duct; PTBD, percutaneous transhepatic biliary drainage; sDEBE, short-type, double-balloon endoscope.

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