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Portobiliary fistula: an unusual complication of wire-guided cannulation during endoscopic retrograde cholangiopancreatography

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Wire-guided cannulation (WGC) is widely used for bile duct cannulation during endoscopic retrograde cholangiopancreatography (ERCP) [1]. Herein we present a patient with a WGC-induced portobiliary fistula. A 65-year-old man was admitted to our department for further evaluation of a dilated segment IV bile duct detected on CT. No dilated veins or aberrant vessel development around the pancreatic head were detected on CT. The physical examination and laboratory tests were unremarkable. Duodenoscopy revealed no masses in the ampulla of Vater (Fig. 1). To cannulate the bile duct for further evaluation, WGC using a conventional catheter was attempted. A hard 0.025-inch guidewire was gently and carefully advanced under endoscopic and fluoroscopic guidance. After three attempts, we thought that selective bile duct cannulation was achieved because the guidewire advanced smoothly (Fig. 2, Video 1). The catheter was then inserted over the guidewire with slight resistance near the ampulla of Vater. On cannulation, when we could not aspirate bile or blood, contrast medium was injected through the catheter, which cleared within a few seconds in the direction of the liver (Fig. 3). We also recognized subtle blood flow which we speculated as arising from the posterior superior pancreaticoduodenal vein around the pancreatic head (Video 2). We realized that

the catheter was placed in the portal venous system. The catheter and guidewire were immediately withdrawn. Duodenoscopy showed small amounts of blood in the catheter and minor bleeding from the ampulla of Vater (Fig. 4). The patient did not require any treatment for minor bleeding. Balloon-associated ERCP was performed one week later. The segment IV bile duct was not visualized on the cholangiogram. Cytological analysis of aspirated bile revealed no evidence of malignancy. Based on these radiological and cytological findings, we made the diagnosis of a benign localized biliary stricture as the cause of the dilated segment IV bile duct. We continued careful follow-up with laboratory tests and imaging at regular intervals.

Iatrogenic portobiliary fistula is an uncommon complication of biliary drainage, liver biopsy, and surgery, which may result in bleeding, sepsis, portal thrombosis, and air embolism [2]. Cannulation or visualization of the portal vein during ERCP is a rare complication, with an incidence in 1 in 6,000 to 8,000 cases [3-4]. This complication during ERCP can result from the laceration of a small portal vein or from direct trauma to the papilla [2]. Serious complications have not been reported. Immediate withdrawal of the tube inserted in the portal vein does not cause serious bleeding [5]. To our knowledge, this is the first report

of a portobiliary fistula created during WGC using a standard guidewire. More attention should be paid to the possibility of guidewire-related portobiliary fistulas while using the WGC technique.

References

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Figure legends

Fig. 1 a: Endoscopic image showing no masses in the ampulla of Vater.

Fig. 1 b: Endoscopic image showing the catheter being gently and carefully advanced over a 0.025-inch guidewire.

Fig. 1 c: Radiograph showing contrast medium injected through the catheter. **b:** Radiograph showing contrast medium has cleared within a few seconds without suction.

Fig. 1 d: Endoscopic image showing minor bleeding from the ampulla of Vater.

Fig. 2 a: Radiograph showing contrast medium injected through the catheter.

Fig. 2 b: Radiograph showing contrast medium has cleared within a few seconds without suction.

Video 1: After three attempts at wire-guided cannulation, we thought that we selective bile duct cannulation was achieved because the guidewire was advancing smoothly.

Video 2: Radiograph showing subtle blood flow around the pancreatic head.











