

Case report

The rendezvous technique involving insertion of a guidewire in a percutaneous transhepatic gallbladder drainage tube for biliary access in a case of difficult biliary cannulation

Fumiko Sunada¹, Naoki Morimoto², Mamiko Tsukui^{1,2} and Hidekazu Kurata¹

¹Department of Gastroenterology, Tochigi Medical Center, Japan

²Department of Gastroenterology and Hepatology, Jichi Medical School Hospital, Japan

Abstract

Endoscopic retrograde cholangiopancreatography (ERCP) is a diagnostic method and treatment approach for biliary diseases. However, biliary cannulation can be difficult in some cases. We performed ERCP in a 97-year-old woman with abdominal pain resulting from acute cholangitis caused by choledocholithiasis and observed difficult biliary cannulation. Eventually, the patient was successfully treated with the rendezvous technique. We could not cannulate the biliary duct during ERCP twice. Therefore, we placed a percutaneous transhepatic gallbladder drainage (PTGBD) tube without intrahepatic dilation. The rendezvous technique was performed using the PTGBD tube. The patient did not experience pancreatitis or perforation.

Key words: endoscopic retrograde cholangiopancreatography, difficult biliary cannulation, percutaneous transhepatic gallbladder drainage, rendezvous technique

(*J Rural Med 2017; 12(1): 46–49*)

Introduction

Endoscopic retrograde cholangiopancreatography (ERCP) is a diagnostic method and treatment approach for biliary diseases. Selective biliary cannulation has been reported to

fail in 15–35% of cases¹). For overcoming difficult biliary cannulation, several methods have been reported. Recently, the sequential double-guidewire technique and transpancreatic precut sphincterotomy were shown to be useful in cases of difficult biliary cannulation. No significant difference in cannulation success rate was found between the two methods^{2–4}). The rendezvous technique is useful for cases in which cannulation cannot be performed with the sequential double-guidewire technique and transpancreatic precut sphincterotomy⁵). However, the rendezvous technique is complicated. We had a patient with difficult biliary cannulation, who could not be treated with the sequential double-guidewire technique or transpancreatic precut sphincterotomy. Eventually, the patient was successfully treated with the rendezvous technique. Here, we report this case, with consideration of the literature.

Case report

A 97-year-old woman was admitted to our hospital because of acute obstructive cholangitis and common bile duct stones. She had no significant medical history or relevant family history. On physical examination, she reported acute right abdominal pain. Blood examination revealed a white blood cell count of 17,900/ μ L, aspartate aminotransferase level of 269 IU/L, alanine aminotransferase level of 120 IU/L, total bilirubin level of 1.9 mg/dL, and C-reactive protein level of 0.56 mg/dL. Abdominal ultrasonography revealed gallbladder swelling, and abdominal computed tomography revealed several bile duct stones measuring 8 mm in diameter (Figure 1). Therefore, she was diagnosed with acute cholangitis due to choledocholithiasis. We attempted ERCP (Olympus JF260V; Olympus, Tokyo, Japan);

Received: August 31, 2016

Accepted: December 13, 2016

Correspondence: Fumiko Sunada, Department of Gastroenterology, Tochigi Medical Center Shimotsuga, 420-1 Kawatsure, Tochigi 329-4498, Japan

E-mail: f-sunada@jichi.ac.jp

This is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial No Derivatives (by-nc-nd) License <<https://creativecommons.org/licenses/by-nc-nd/4.0/>>.



Figure 1 Abdominal computed tomography scan showing choledocholithiasis (8 mm in diameter).



Figure 2 The PTGBD tube placed near the cystic duct as much as possible.

however, we could not cannulate the bile or pancreatic duct. She did not have an intradiverticular papilla. We then attempted the precut procedure, but could not cannulate the duct. Therefore, a percutaneous transhepatic gallbladder drainage (PTGBD) tube (Hanako 7-Fr pigtail percutaneous transhepatic biliary drainage [PTCD] tube; Hanako Medical, Tokyo, Japan) was placed under ultrasonographic guidance, without dilation of the intrahepatic bile duct. We again attempted ERCP, but were unsuccessful. We then used the PTGBD route (rendezvous technique), which was relocated near the cystic duct to align the cystic duct in a straight line as much as possible (Figure 2), and placed a guidewire (Jagwire angle tip, 0.035 in \times 450 cm; Boston Scientific, Natick, MA) from the cystic duct to the ampulla. The duodenal endoscope was caught with the guidewire and was pulled out from the instrument channel (Figures 3 and 4). A papillotome was then inserted, and sphincterotomy was performed. Five days later, choledocholithotripsy was performed and no post-ERCP pancreatitis or other complications occurred. She was discharged from the hospital 4 days after the final procedure for common bile duct stones.

Discussion

Selective biliary cannulation is a necessary step for therapeutic ERCP. When biliary cannulation is performed by experienced surgeons, the success rate is more than 90%⁶.

However, biliary cannulation can fail in some cases, and the risk of pancreatitis increases in these cases. The occurrence rate of post-ERCP pancreatitis has been reported to be 7.3–17%, even when methods for difficult bile duct cases were used^{2–4, 7}.

The initial step involves identification of the bile duct with a catheter or wire-guided cannulation using a papillotome and catheter. For success, the papilla of Vater should be closely observed in the frontal view⁶. If this step is successful, the risk of pancreatitis after ERCP would be lower. In unsuccessful cases, several methods have been reported. If cannulation of the pancreatic duct can be performed and a guidewire can be placed in the pancreatic duct, the pancreatic guidewire-indwelling method is useful. It is referred to as the sequential double-guidewire technique. Dumonceau et al. were the first to report this method⁸. The authors mentioned that this method can be successfully performed in cases in which the papilla of Vater cannot be observed from the front. Another method is transpancreatic precut sphincterotomy. This method is quite advanced. Bile duct cannulation is possible by cutting the opening of the papilla of Vater or ampulla, and identifying the ampulla of the bile duct or the point of bile drainage. The precut method can be performed with a needle knife³ or papillotome^{3, 7}. The needle knife procedure is associated with easy hand control. The procedure involving a papillotome has the advantage of a fixed papilla of Vater. Cutting is initiated from the pan-



Figure 3 The rendezvous technique involving a percutaneous transhepatic gallbladder drainage tube.

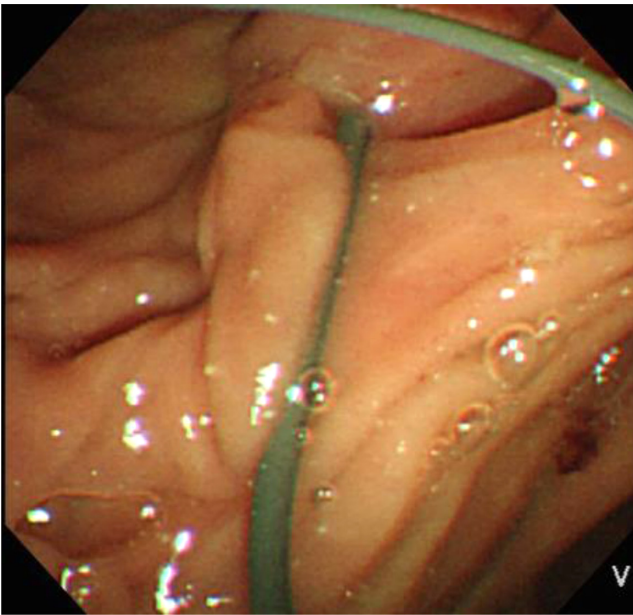


Figure 4 Guidewire placement and duodenal endoscopy.

creatic duct. Recently, the use of guidewire transpancreatic precut sphincterotomy has been reported³. If this approach is not successful, the surgery might be prolonged. In addition, the risk of complications increases when the surgery is unsuccessful.

Another approach is the two-devices-in-one-channel method, which has been reported to be useful⁹. This method is beneficial when the papilla is located deep inside a diverticulum. The rendezvous technique can also be performed⁵. The rendezvous technique involves transpapillary endoscopic therapy using PTCB or PTGBD. The process using PTCB is easier than that using PTGBD. The angle between the hepatic and common bile ducts is almost 180°, and the guidewire has a straight course. However, in PTGBD, the angle between the cystic duct and common bile duct is acute, and the route to the cystic duct is not straight but is spiral. Thus, the guidewire is difficult to insert from the gallbladder through the common bile duct. Reports on the PTGBD process are few. We attempted to position the PTGBD tube as close to the cystic duct as possible. We attempted to ensure a straight line to the cystic duct as much as possible through the guidewire. This procedure does not confer any risk of pancreatitis. The guidewire is passed through the PTBD or PTGBD tube to the duodenum, and the endoscope is introduced. Continuous endoscopic sphincterotomy is then performed. A fistula from the skin to the liver should be created before performing the rendezvous technique, and this procedure is greatly complicated. Presently, the endoscopic ultrasonography-guided rendezvous technique is often performed¹⁰. However, this procedure requires exclusive devices. To overcome difficult biliary cannulation, experience and knowledge of the abovementioned techniques are necessary.

Conclusion

We successfully performed the rendezvous technique in a patient with difficult biliary cannulation, who could not be treated with the sequential double-guidewire technique or by transpancreatic precut sphincterotomy. We believe that the rendezvous technique should be considered in patients with difficult biliary cannulation.

Conflicts of Interest: The authors declare no conflicts of interest with regard to this article.

References

1. Testoni PA, Testoni S, Giussani A. Difficult biliary cannulation during ERCP: how to facilitate biliary access and minimize the risk of post-ERCP pancreatitis. *Dig Liver Dis* 2011; 43: 596–603. [[Medline](#)] [[CrossRef](#)]
2. Herreros de Tejada A, Calleja JL, Diaz G, *et al*. UDOGUA-04 Group. Double-guidewire technique for difficult bile duct cannulation: a multicenter randomized, controlled trial. *Gastrointest Endosc* 2009; 70: 700–709. [[Medline](#)] [[Cross-Ref](#)]

3. Sakai Y, Tsuyuguchi T, Mikata R, *et al.* Pancreatic duct guidewire-indwelling method for patients resistant to selective biliary cannulation and usefulness of pre-cut papillotomy following unsuccessful biliary cannulation with pancreatic duct guidewire-indwelling method. *Hepatogastroenterology* 2011; 58: 698–704. [[Medline](#)]
4. Sakai Y, Tsuyuguchi T, Sugiyama H, *et al.* Transpancreatic precut papillotomy in patients with difficulty in selective biliary cannulation. *Hepatogastroenterology* 2011; 58: 1853–1858. [[Medline](#)]
5. Calvo MM, Bujanda L, Heras I, *et al.* The rendezvous technique for the treatment of choledocholithiasis. *Gastrointest Endosc* 2001; 54: 511–513. [[Medline](#)] [[CrossRef](#)]
6. Sakai Y, Tsuyuguchi T, Sugiyama H, *et al.* Basic technique of ERCP and advanced technique for difficult selective biliary cannulation. *Tandou* 2014; 28: 28–35.
7. Goff JS. Common bile duct pre-cut sphincterotomy: transpancreatic sphincter approach. *Gastrointest Endosc* 1995; 41: 502–505. [[Medline](#)] [[CrossRef](#)]
8. Dumonceau JM, Devière J, Cremer M. A new method of achieving deep cannulation of the common bile duct during endoscopic retrograde cholangiopancreatography. *Endoscopy* 1998; 30: S80. [[Medline](#)] [[CrossRef](#)]
9. Fujita N, Noda Y, Kobayashi G, *et al.* ERCP for intradiverticular papilla: two-devices-in-one-channel method. *Endoscopic Retrograde Cholangiopancreatography*. *Gastrointest Endosc* 1998; 48: 517–520. [[Medline](#)] [[CrossRef](#)]
10. Iwashita T, Lee JG, Shinoura S, *et al.* Endoscopic ultrasound-guided rendezvous for biliary access after failed cannulation. *Endoscopy* 2012; 44: 60–65. [[Medline](#)] [[CrossRef](#)]