Case Report

A Case of Choledocholithiasis Treated by Rendezvous Technique During PTGBD After Total Gastrectomy

Yuuki Kanno, Tetsuyoshi Takayama, Kazuto Kojima, Naomi Ogino,
Hiroyuki Fukano, Yasuhiro Oohara, Hiroshi Asano and Nozomi Shinozuka
Department of Gastroenterological and General Surgery, Saitama Medical University Hospital

Abstract

The 2013 Acute Cholangitis and Acute Cholecystitis Treatment Guidelines recommend minimally invasive endoscopic drainage when selecting a technique for biliary drainage. However, in some cases, the papillary approach is difficult because of the effects of previous surgery and anatomical changes. Here we report a case of endoscopic lithotomy using the rendezvous technique during percutaneous transhepatic gallbladder drainage to treat choledocholithiasis after total gastrectomy and Roux-en-Y reconstruction. We believe that this case illustrates the potential of endoscopic lithotomy as a useful treatment option in cases of problematic choledocholithiasis after total gastrectomy.

Key words: Choledocholithiasis, Total gastrectomy with Roux-en-Y reconstruction, Rendezvous technique

Introduction

In general, the treatment of choledocholithiasis is minimally invasive and simple; therefore, the endoscopic treatment is frequently used as the first-line therapy. However, the endoscopic treatment is sometimes difficult, for example, in cases of papillary diverticula or in postgastrectomy patients. Here we report a case of endoscopic lithotomy using the rendezvous technique during percutaneous transhepatic gallbladder drainage to treat choledocholithiasis after the total gastrectomy and Roux-en-Y

reconstruction.

Case Report

The patient was a 74-year-old man whose chief complaint was epigastric pain. At 54 years of age, he underwent distal gastrectomy for gastric cancer, and at 73 years of age, residual cancer was treated by total gastrectomy with Roux-en-Y reconstruction. Thereafter, there was necrosis of the transverse colon, which was treated with an extended right hemicolectomy, and a small intestinal ostomy was created. The patient was being followed as an outpatient at our hospital. He also had atrial fibrillation. There was no remarkable family history.

On presentation, he had developed epigastric pain after breakfast, which did not dissipate and was consulted as an outpatient. On admission, his height was 161cm, weight 45kg, body temperature 37.5 °C, blood pressure 100/62mmHg, and pulse 107 beats/min. The abdomen was flat and soft; however, there was a spontaneous pain and tenderness in the epigastric fossa without guarding. A surgical scar running down the center of the epigastrium was noted, and a small intestinal ostomy was present in the right hypogastrium. The results of laboratory testing were as follows: WBC $8,130/\mu\text{l}$, RBC $344 \times 10^3/\mu\text{l}$, Hb 10.4g/dl, PLT $165 \times 10^3/\mu\text{l}$, CRP 1.16mg/dl, AST 152 IU/L, ALT 132 IU/L, ALP 687 U/L, γ GTP 359 U/L, T-Bil 1.9mg/dl, and D-Bil 1.2mg/dl. Jaundice was present with predominantly direct hyperbilirubinemia.

On abdominal ultrasound, a 2.5-cm stone was observed in the neck of the gallbladder without thickening of the gallbladder wall. On abdominal CT, high luminance was attributed to the gallstone and choledocholithiasis. Magnetic resonance cholangio-

Received: May 28, 2015/ Accepted: June 28, 2015

Correspondence to: Yuuki Kanno

Department of Gastroenterological and General Surgery,
Saitama Medical University Hospital, Morohongo 38,
Irumagun Moroyamamachi, Saitama 350-0495, Japan

Fig. 1 Magnetic resonance cholangiopancreatography showed filling defects in the gallbladder and the common bile duct.

Fig. 2 The endoscope could not be passed because of the high-grade stenosis of the horizontal portion of the duodenum.

Fig. 3 a, b: A GW was passed through the PTGBD tube via the gallbladder, bile duct, and duodenum to the area near the jejunojejunal anastomosis. a|b

pancreatography showed filling defects in the gallbladder and the common bile duct, and it seemed to the gallstone and choledocholithiasis (**Fig. 1**). Based on the above findings, the patient was diagnosed with choledocholithiasis of the common bile duct and was admitted to the hospital as an emergency case.

Endoscopic retrograde cholangiopancreatography (ERCP) was attempted; however, in addition to the previous total gastrectomy with Roux-en-Y reconstruction, the patient had high-grade stenosis of the horizontal portion of the duodenum (**Fig. 2**), and reaching the duodenal papilla was difficult. His

symptoms and blood tests improved on fasting and administration of antibiotics, and his food intake was resumed. On day 8, the patient's condition complicated by acute cholecystitis, and percutaneous transhepatic gallbladder drainage (PTGBD) was performed. After cholecystitis improved, a guidewire (GW) was passed through the PTGBD tube via the gallbladder, bile duct, and duodenum to the area near the jejunojejunal anastomosis on day 13 (**Fig. 3a, b**). On day 16, the GW was secured during endoscopy (**Fig. 4**) with a high degree of flexion in the duodenum; however, by pulling the GW from the PTGBD, the tip of the endoscope could be guid-

Fig. 4 We were able to grasp a guide wire.

Fig. 5 We were able to look directly into the duodenal papilla.

Fig. 6 Endoscopic papillary large-balloon dilation.

Fig. 7 The stone was removed using a balloon.

ed to the duodenal papilla, and endoscopic papillary dilation using a large balloon under direct visualization was performed (**Fig. 5, 6**). The presence of a 5-mm stone was confirmed in the lower bile duct during bile duct imaging, and the stone was removed using a balloon (**Fig. 7**). On day 25 of admission, the PTGBD was removed. Because the patient's clinical course was favorable, he was discharged on day 27.

Discussion

According to The 2013 Acute Cholangitis and Acute Cholecystitis Treatment Guidelines, minimally invasive endoscopic drainage is a level-1 recommendation for biliary drainage¹⁻⁴⁾. However, it is difficult to perform this technique in some cases because of the effects of previous surgery or anatomical changes, as in the present case. Uno et al⁵⁾ and Inomata et al⁶⁾ reported that the rate of papillary arrival and selective bile duct imaging was 33%–67% after total

gastrectomy with Roux-en-Y reconstruction. These current values are not satisfactory. However, there have been reports on the use of double balloon endoscopes⁷⁾, small diameter colonoscopies⁸⁾, and the concomitant use of overtubes for small intestinal and anterior oblique-viewing endoscopes⁸⁾, which may lead to further improvements. The rendezvous technique involves concomitant percutaneous transhepatic and transpapillary routes. Its use was first reported in 1980 by Mason et al⁹⁾. The major advantage of the rendezvous technique is that an emergency percutaneous transhepatic drainage route can be used during the treatment of cholangitis or cholecystitis. Compared with surgery and normal ERCP, the physical burden remains un-

changed in this technique, and it is also widely indicated in high-risk cases and in the elderly. It is lesser invasive than surgical procedures, shortens the duration of the hospital stay, and carries lower complication risks. In our case, PTGBD was placed because of the complication of cholecystitis. Although there was no intrahepatic bile duct dilation, gallbladder drainage was comparatively easy, suggesting its wider use in other cases. However, if there is a PTGBD route, it may not be possible to pass a GW and perform the procedure in patients with advanced stenosis of the bile duct, impacted calculi, or unsuitable geometry of the gallbladder duct. In addition, the PTGBD may slip into the peritoneal cavity because of the route of gallbladder drainage and respiratory movements, leading to complications associated with biliary fistulae and peritonitis.

On searching Igaku Chuo Zasshi (Japan Medical Abstracts) between 1983 and 2014, we found only one report by Futagawa et al¹⁰⁾ concerning lithotomy using the rendezvous technique to treat bile duct choledocholithiasis after total gastrectomy with Roux-en-Y reconstruction. Therefore, this method seems poorly recognized as a treatment option. There are reports on the rendezvous technique being performed via the route for biliary tract imaging during laparoscopic cholecystectomy¹¹⁾ and on the rendezvous technique using endoscopic ultrasound to drain the bile ducts from the gastrointestinal lumen¹²⁾. Various methods have been used to treat choledocholithiasis; however, it is important to select a treatment method appropriate for the actual conditions or the institutional environment. Irrespective of the surgical technique used, it is important to plan for improvement in the patients' general condition.

While we do not believe that lithotomy using the rendezvous technique will always be as easy as it was in the present case, it could represent a solution for cases wherein lithotomy is difficult. In terms of its usefulness and indications, further cases need to be acquired and studied.

Here we report a case of endoscopic lithotomy using the rendezvous technique during PTGBD to treat choledocholithiasis after total gastrectomy and Roux-en-Y reconstruction.

Conflict of interest: None.

References

- 1) Kiriya S, Takada T, Strasberg SM, et al: New diagnostic criteria and severity assessment of acute cholangitis in revised Tokyo guidelines. *J Hepatobiliary Pancreat Sci* 19: 548-556, 2012
- 2) Lai EC, Mok FP, Tan ES, et al: Endoscopic biliary drainage for severe acute cholangitis. *N Engl J Med* 24: 1582-1586, 1992
- 3) Leung JW, Chung SC, Sung JJ, et al: Urgent endoscopic drainage for acute suppurative cholangitis. *Lancet* 10: 1307-1309, 1989
- 4) Boender J, Nix GA, de Ridder MA, et al: Endoscopic sphincterotomy and biliary drainage in patients with cholangitis due to common bile duct stones. *Am J Gastroenterol* 90: 233-238, 1995
- 5) Uno K, Sakata M, Yasuda K: ERCP after Billroth II or Roux-en-Y reconstruction. *Gastroenterol Endosc* 19: 831-836, 2007
- 6) Inomata M, Terui T, Endo M, et al: Endoscopic transpapillary procedures in patients with total gastrectomy and Roux-en-Y reconstruction. *Bile and Pancreatic* 26: 19-25, 2005
- 7) Adachi S, Nakahara K, Okuse C, et al: Successful endoscopic removal of a bile duct stone in patient with Roux-en-Y reconstruction with 200cm double-balloon enteroscope alone. *Gastroenterol Endosc* 54: 50-56, 2012
- 8) Hirai R, Kikuyama M, Sato K, et al: An oblique-viewing endoscope with an overtube facilitate bile duct stone removal in Roux-en-Y gastrectomy patients. *Gastroenterol Endosc* 48: 212-217, 2006
- 9) Mason RR, Cotton PB: Combined endoscopic and percutaneous trans-cystic approach to a retained common duct stone. *Br J Radiol* 53: 38-39, 1980
- 10) Futagawa Y, Saito A, Anan T, et al: A case in which the rendezvous technique was used for bile duct stone removal in a total gastrectomy patient who had undergone Roux-en-Y reconstruction. *Gastroenterol Endosc* 52: 2713-2719, 2010
- 11) Shimura K, Karibe T, Doi M, et al: A case of choledocholithiasis treated by the rendezvous technique during laparoscopic cholecystectomy. *Endoscopic forum for digestive disease* 29: 33-37, 2013
- 12) Kawakubo K, Isayama H, Nakai Y, et al: Endoscopic Ultrasound rendezvous technique for bile duct access. *Bile and Pancreatic* 32: 967-970, 2011