

Simultaneous Duodenal Metal Stent Placement and EUS-Guided Choledochoduodenostomy for Unresectable Pancreatic Cancer

Kazumichi Kawakubo, Hiroyuki Isayama, Yousuke Nakai, Naoki Sasahira, Hirofumi Kogure, Takashi Sasaki, Kenji Hirano, Minoru Tada, and Kazuhiko Koike

Department of Gastroenterology, The University of Tokyo Graduate School of Medicine, Tokyo, Japan

Patients with pancreatic cancer frequently suffer from both biliary and duodenal obstruction. For such patients, both biliary and duodenal self-expandable metal stent placement is necessary to palliate their symptoms, but it was difficult to cross two metal stents. Recently, endoscopic ultrasonography-guided choledochoduodenostomy (EUS-CDS) was reported to be effective for patients with an inaccessible papilla. We report two cases of pancreatic cancer with both biliary and duodenal obstructions treated successfully with simultaneous duodenal metal stent placement and EUS-CDS. The first case was a 74-year-old man with pancreatic cancer. Duodenoscopy revealed that papilla had been invaded with tumor and duodenography showed severe stenosis in the horizontal portion. After a duodenal uncovered metal stent was placed across the duodenal stricture, EUS-CDS was performed. The second case was a 63-year-old man who previously had a covered metal stent placed for malignant biliary obstruction. After removing the previously placed metal stent, EUS-CDS was performed. Then, a duodenal covered metal stent was placed across the duodenal stenosis. Both patients could tolerate a regular diet and did not suffer from stent occlusion. EUS-CDS combined with duodenal metal stent placement may be an ideal treatment strategy in patients with pancreatic cancer with both duodenal and biliary malignant obstruction. (*Gut Liver* 2012;6:399-402)

Key Words: Endoscopic ultrasonography-guided choledochoduodenostomy; Duodenal stent; Malignant biliary obstruction

INTRODUCTION

Patients with pancreatic cancer frequently suffer from both biliary and duodenal obstruction. For such patients, both biliary

and duodenal self-expandable metal stent (SEMS) placement is necessary to palliate symptoms.^{1,2} However, when the duodenal papilla is involved with tumor and covered by a duodenal metal stent, it is difficult to insert a catheter into the biliary duct through the mesh of the duodenal stent. Recently, endoscopic ultrasonography-guided choledochoduodenostomy (EUS-CDS) was reported to be an alternative to endoscopic transpapillary biliary drainage for patients with an inaccessible papilla due to tumor invasion.^{3,4} Here, we report two cases of pancreatic cancer with both biliary and duodenal malignant obstructions treated successfully with simultaneous duodenal metal stent placement and EUS-CDS.

CASE REPORT

1. Case 1

A 74-year-old man presented with obstructive jaundice and appetite loss. Computed tomography showed unresectable pancreatic head cancer. Duodenoscopy revealed that the duodenum was obstructed by tumor from just anal side of the papilla to the third portion about 2 cm, so both biliary and duodenal stents were necessary for symptom palliation (Fig. 1). The endoscope (GIF-2T240; Olympus, Tokyo, Japan) was advanced into the duodenum and duodenography showed severe stenosis in the horizontal portion of the duodenum. A 0.035-inch guidewire (Revowave; Piolax Medical Devices, Kanagawa, Japan) was passed through the stenosis under endoscopic and fluoroscopic guidance. An uncovered expandable metal stent (WallFlex Duodenal; Boston Scientific, Natick, MA, USA) was advanced over the guidewire through the endoscopic channel and released under endoscopic and fluoroscopic guidance (Fig. 2A). Immediately after stent placement, duodenography showed contrast fluid passing through the stent smoothly. However we could

Correspondence to: Hiroyuki Isayama

Department of Gastroenterology, The University of Tokyo Graduate School of Medicine, 7-3-1 Hongo, Bunkyo-ku, Tokyo 113-8655, Japan
Tel: +81-3-3815-5411, Fax: +81-3-3814-0021, E-mail: isayama-2im@h.u-tokyo.ac.jp

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not identify the orifice of the papilla through the endoscope and perform transpapillary stenting. Then the endoscope was withdrawn and a curvilinear array echoendoscope (GF-UCT240; Olympus, Tokyo, Japan) was advanced into the duodenum. The dilated extrahepatic bile-duct was punctured at the bulb of the duodenum with a 19-gauge needle (Echotip Ultra; Cook Medical, Winston-Salem, NC, USA) and contrast was instilled through the needle under fluoroscopic guidance to confirm successful biliary access. A 0.035-inch guidewire (Revowave; Piolax Medical Devices) was introduced through the needle and advanced into the intrahepatic duct. After removing the needle, the puncture channel was expanded with 7 Fr biliary dilator catheters and a 4-mm balloon catheter. Then, a 7 Fr straight plastic stent (Flexima; Boston Scientific) was placed over the guidewire (Fig. 2B and C). The patient could tolerate a regular solid diet after the procedure and 7 Fr plastic stent was electively replaced with 8.5 Fr plastic stent (Flexima; Boston Scientific)

using Soehendra stent retriever without complications 32 days after EUS-CDS. After the replacement, stent occlusion did not occur.

2. Case 2

A 63-year-old man underwent covered SEMS placement for malignant biliary obstruction due to pancreatic head cancer on December 2008. He had been suffering from recurrent cholangitis without stent occlusion and SEMS was replaced with two plastic stents on January 2009. He presented with appetite loss and vomiting on March 2009. Duodenography revealed severe duodenal stenosis from the oral side of the papilla to the third portion due to tumor invasion about 2 cm (Fig. 3). Furthermore, the papilla was involved with tumor, so the duodenal metal stent placement would blocked the papilla. Therefore, we needed to perform EUS-CDS instead of transpapillary stenting. After removal of biliary plastic stents with snare, a curvilinear array

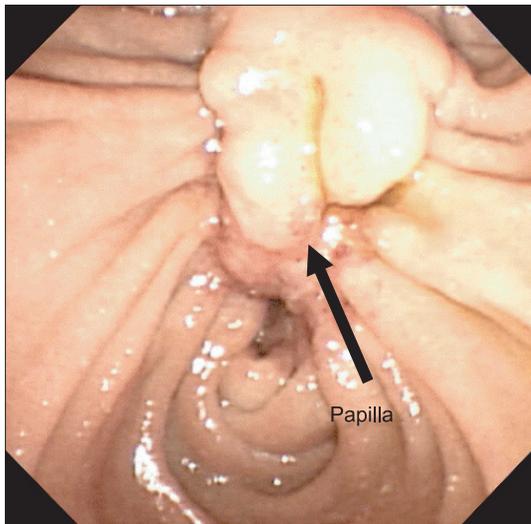


Fig. 1. Duodenoscopy showing duodenal invasion and obstruction at the anal side of the papilla (arrow).

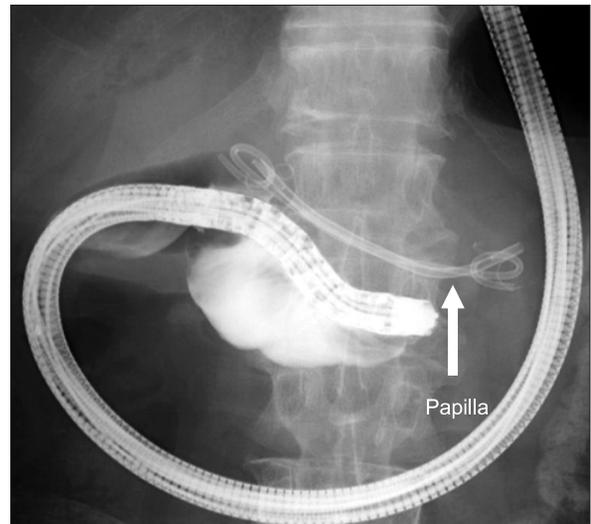


Fig. 3. Duodenography showing severe stenosis on the oral side of the papilla (arrow).

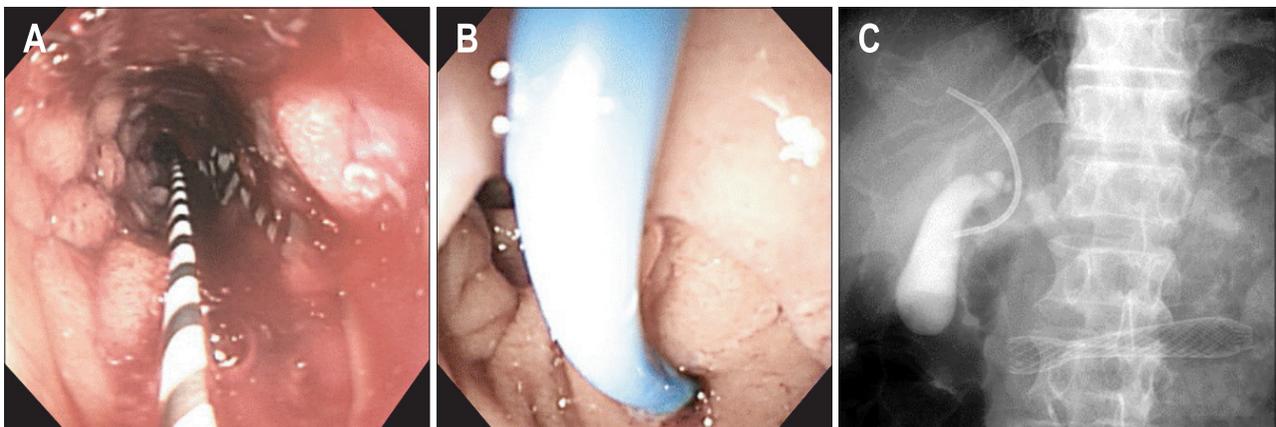


Fig. 2. Endoscopic images showing (A) an uncovered duodenal metal stent and (B) a transmural biliary stent at the duodenal bulb, and (C) a fluoroscopic image showing the choledochoduodenostomy and duodenal stent.

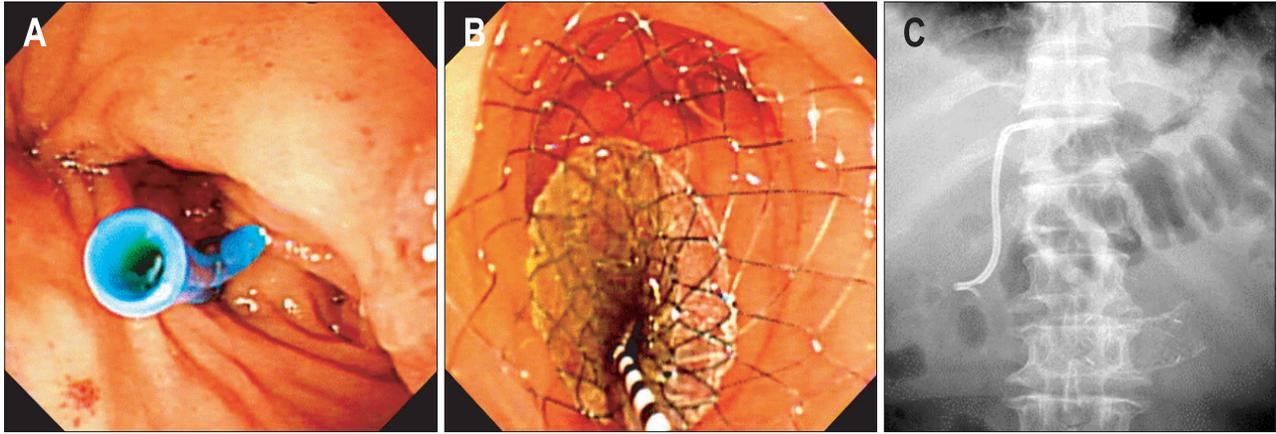


Fig. 4. Endoscopic images showing (A) a transmural biliary stent at the bulb and (B) a covered duodenal metal stent, and (C) a fluoroscopic image showing the choledochoduodenostomy and duodenal stent.

echoendoscope (GF-UCT240; Olympus) was advanced to the duodenal bulb. From the bulb of the duodenum, we punctured the bile duct with 19-gauge needle, which was not dilated due to previous biliary stent. A 0.035-inch guidewire (Jagwire; Boston Scientific) was advanced into the intrahepatic duct through the needle. After removing the needle, the puncture channel was expanded with 7 Fr biliary dilator catheters and a 4-mm balloon catheter. Then, a 7 Fr straight plastic stent (Flexima) was inserted over the guidewire (Fig. 4A). Then, a covered expandable metal stent (ComVi; Taewoong Medical, Seoul, Korea) was placed through the endoscopic channel across the duodenal stenosis (Fig. 4B and C). The patient could eat a solid diet and the stent remained patent within 111 days until the patient died.

DISCUSSION

The management of pancreatic cancer with both biliary and duodenal malignant obstructions is challenging. In such patients, the placement of both duodenal and biliary metal stents is effective for symptom palliation.^{2,5} However, it is technically difficult to cross two metal stents and impossible to perform transpapillary biliary drainage. In such cases, percutaneous transhepatic drainage or hepaticojejunostomy are necessary to relieve the jaundice, which has high mortality and morbidity.^{6,7} Recently, EUS-CDS has emerged as effective for internal biliary drainage, instead of external drainage.⁴ In addition to low morbidity and mortality, EUS-CDS can be performed simultaneously with duodenal stenting under the same anesthesia, which may reduce costs. It was preferable to perform duodenal stenting before EUS-CDS because a prolonged endoscopic procedure after EUS-CDS may aggregate EUS-CDS related complication such as bile leak, except for in cases with cholangitis in which immediate biliary drainage was necessary. There have been a few reports that pancreatic cancer with both biliary and duodenal obstructions was treated successfully with duodenal metal stent

placement and simultaneous EUS-CDS.⁸ Although EUS-CDS is a novel technique and specialized device development was necessary, EUS-CDS combined with duodenal metal stent placement is an ideal treatment strategy in patients with pancreatic cancer with both duodenal and biliary malignant obstructions.

CONFLICTS OF INTEREST

No potential conflict of interest relevant to this article was reported.

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