

# SUCCESSFUL TREATMENT OF OBSTRUCTIVE JAUNDICE IN A CARCINOMA OF THE PAPANICOLAOU OF VATER BY ENDOSCOPIC ULTRASOUND-GUIDED CHOLEDOCHODUODENOSTOMY

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## Abstract

A 78-year-old man who was admitted to Akita University Hospital complained of jaundice and abdominal discomfort. He was diagnosed with obstructive jaundice that was caused by the carcinoma of the papilla of Vater based on the esophagogastroduodenoscopy (EGD) with a biopsy and computed tomography (CT). His condition was inoperable due to hepatic and lung metastasis, and he rejected any chemotherapy. Therefore, a palliative therapy to decompress the biliary obstruction for the improvement of jaundice and the prophylaxis of cholangitis was required. Although endoscopic retrograde biliary drainage (ERBD) was first attempted to decompress the biliary obstruction, it failed because of the tumor invasion. Next, endoscopic ultrasound-guided choledochoduodenostomy (EUS-CDS) was carried out successfully, and the jaundice improved with the decrease of the serum bilirubin values from 30.1 mg/dl to 6.1 mg/dl on the day of his discharge. He left the hospital and maintained his quality of life.

**Key words :** EUS-CDS, carcinoma of the papilla of Vater

## Introduction

Biliary obstruction due to malignant tumors is a critical condition that leads to severe jaundice and the onset of fatal bacterial cholangitis. It is mainly caused by bile duct carcinoma and pancreatic head carcinoma. Although the morbidity is lower, carcinoma of the papilla of Vater (CPV) also causes the biliary obstruction.

For the treatment of malignant distal biliary obstruction, endoscopic retrograde biliary drainage (ERBD) via the papilla of Vater has been performed as the procedure

of first choice. In some cases, however, ERBD fails because of the anatomical abnormality and/or tumor invasion<sup>1)</sup>. To date, percutaneous transhepatic biliary drainage (PTBD) has been the major alternative for ERBD failure cases. Although PTBD is an effective procedure for the treatment of malignant biliary obstruction, PTBD definitely compromises the patient's quality of life due to its external drainage tube and it also prolongs the hospital stay<sup>2)</sup>. Recently, endoscopic ultrasound-guided choledochoduodenostomy (EUS-CDS) has been reported as another alternative in ERBD failure cases<sup>3-6)</sup>. These reports mainly documented the efficacy of EUS-CDS in the cases of pancreatic head carcinoma and bile duct carcinoma. We herein report a malignant biliary obstruction case that was caused by the carcinoma of the papilla of Vater and which was successfully treated by EUS-CDS.

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### Case Report

A 78-year old man was admitted to our hospital and he complained of severe jaundice and abdominal discomfort. The laboratory data revealed that his total bilirubin and hepato-biliary enzymatic levels were elevated (Table 1). He was diagnosed with obstructive jaundice that was caused by carcinoma of papilla of Vater according to CT and EGD with biopsy (Fig. 1A,B,C). In order to decompress the biliary obstruction, ERBD was first attempted. However, it was impossible to insert the cannulation tube for ERBD into the common bile duct via the papilla of Vater due to tumor invasion. Usually, PTBD is considered as an alternative for ERBD failure cases, however, EUS-CDS was carried out instead of PTBD in this case. This decision was made in order to maintain the patient's quality of life, since the carcinoma was inoperable due to lung and hepatic metastasis and he rejected any chemotherapy. After written informed consent was obtained, EUS-CDS was carried out using a lin-

ear echoendoscope (GF-UCT260<sup>®</sup>, Olympus, Tokyo, Japan) as reported previously<sup>4</sup>). After identifying the dilated common bile duct with sonography using the echoendoscope positioned in the duodenum, a 22-gauge puncture needle (Expect<sup>®</sup>, Boston Scientific Japan, Tokyo, Japan) was inserted from the duodenum bulb to the middle portion of the common bile duct, and contrast medium was injected into the bile duct (Fig. 2A). Next, a 0.021 inch guidewire was passed into the bile duct through the puncture needle (Fig. 2B). After the route between the duodenum bulb and the common bile duct was dilated using an electric dilator (Endo-Flex GmbH, Voerde, Germany), a covered self expandable metallic stent (SEMS) (10 mm diameter, 6 cm length, Wall Flex<sup>®</sup>, Boston Scientific Japan, Tokyo, Japan) was placed between the duodenum bulb and the common bile duct (Fig. 2C). After the procedure, no adverse event was observed and the values of the total bilirubin and hepato-biliary enzymatic levels decreased. On the day of his discharge, the values of total bilirubin, ALP,  $\gamma$ -GTP were 6.2

Table 1. Laboratory data on admission

WBC	6,900/ $\mu$ l	T.Bil	30.1 mg/dl
RBC	450 $\times$ 104/ $\mu$ l	D.Bil	21.0 mg/dl
Hb	14.1 g/dl	AST	48 IU/L
Plt	31.3 $\times$ 104/ $\mu$ l	ALT	43 IU/L
CRP	4.78 mg/dl	ALP	1,250 IU/L
		$\gamma$ -GTP	202 IU/L
CEA	6.4 ng/ml		
CA19-9	11,609 U/ml		

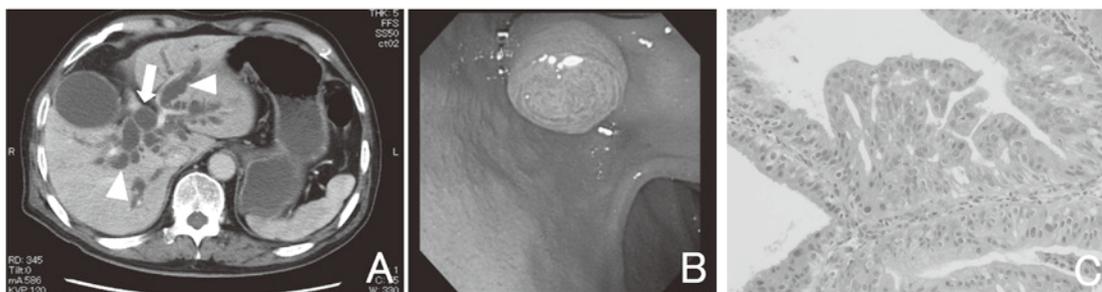


Fig. 1. Diagnosis of the obstructive jaundice that is caused by a carcinoma of the papilla of Vater. A : Computed tomography showing the dilatation of the intrahepatic bile duct (arrowheads) and the common bile duct (arrow). B : The carcinoma of the papilla of Vater observed by esophagogastroduodenoscopy. C : Pathological image of the biopsy specimen obtained from the carcinoma (Hematoxylin-eosin).

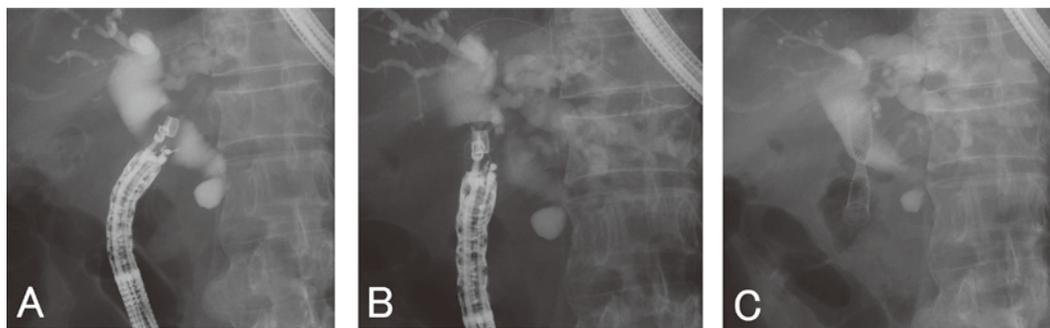


Fig. 2. EUS-CDS. A : A puncture needle was inserted into the common bile duct and a contrast medium was injected. B : A guidewire was inserted into the bile duct through the puncture needle. C : A covered SEMS was finally placed between the common bile duct and duodenum.

mg/dl, 790 IU/L, 166 IU/L, respectively. He left the hospital on foot without any symptoms or limitations of daily life.

### Discussion

The current report described the successful EUS-CDS for malignant biliary obstruction that was caused by CPV. The benefits of EUS-CDS in this case was maintenance of the patient's quality of life.

Generally, drainage stent insertion by ERBD is the first choice procedure for decompression of malignant biliary obstruction. In the cases of ERBD failure, PTBD has been a standard alternative procedure. However, PTBD carries some technical limitations. For instance, peri-hepatic ascites is its contraindication<sup>1)</sup>, and liver metastasis sometimes disturbs the intrahepatic route of the PTBD tube insertion. Therefore, EUS-CDS has been emerging as another alternative procedure for the treatment of ERBD failure cases involving the malignant biliary obstruction<sup>3-6)</sup>.

Although the routes of the stent insertion are different, the drainage stents are placed between the bile duct and duodenum in both ERBD and EUS-CDS. Dhir et al. recently reported that the short-term clinical outcome of EUS-CDS is comparable to that of ERBD<sup>4)</sup>. However, it is noteworthy to emphasize that EUS-CDS is superior to ERBD due to the fact that EUS-CDS carries no concern regarding the procedure-related acute pancreatitis which is a critical adverse event of ERBD, and also because

EUS-CDS does not affect the functions of the papilla of Vater or the pancreatic duct.

In EUS-CDS, the types of the inserted stents are closely associated with the rate of adverse events. Kawakubo et al. reported a multicenter retrospective study indicating that bile leakage, a major adverse event of EUS-CDS, was more frequently observed in patients treated with a plastic stent (11%) than in those with SEMS (4%)<sup>7)</sup>. For endoscopic biliary drainage, two types of SEMS, covered and bare stents, are currently available. Since the stent inserted between the bile duct and duodenum in EUS-CDS passes through the intra-peritoneal free space, covered SEMS is recommended for EUS-CDS to decrease the occurrence of adverse events and also to obtain a longer duration of stent patency<sup>8)</sup>. We thus utilized covered SEMS in the present case.

Although CPV morbidity is relatively small<sup>9)</sup>, it always induces deformity and/or destruction of the papilla of Vater, and often causes biliary obstruction and jaundice. Although ERBD is usually first tried to decompress biliary obstruction in CPV cases, it often fails because of the reasons described above. It might thus be reasonable to apply EUS-CDS as the first choice procedure for the decompression of biliary obstruction caused by CPV. Anyway, further studies are required to assess the clinical long-term outcomes of the EUS-CDS for the treatment of biliary obstruction caused by CPV.

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