INTERNAL MEDICINE

□ CASE REPORT □

A Case of Early Carcinoma of the Papilla of Vater Confined to the Mucosa and Continuative Epithelium of Glands in Oddi's Sphincter (m-God) Treated by Endoscopic Papillectomy

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Abstract

We herein report a case of early stage ampullary cancer, treated by endoscopic papillectomy, in which tumor extension was confined to the mucosa and adjacent epithelium of the glands in Oddi's sphincter. A 77-year-old man underwent screening esophagogastroduodenoscopy, which revealed a mass in the papilla of Vater, which was well-differentiated adenocarcinoma as proven by biopsy. The tumor was diagnosed as T1 and endoscopic papillectomy was performed. Histological examination showed adenocarcinoma limited to the mucosa of the common channel and continuative epithelium of the neighboring glands in Oddi's sphincter. No signs of recurrence have been observed during a follow-up of 23 months.

Key words: ampullary cancer, endoscopic papillectomy, endoscopic ultrasonography, intraductal ultrasonography, Oddi's muscle

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Introduction

Carcinoma of the papilla of Vater tends to show clinical symptoms such as abdominal pain and jaundice even at an early stage due to the anatomical property of this region. This sometimes leads to early detection and a better prognosis following surgical resection compared with other biliopancreatic cancers. On the other hand, endoscopic papillectomy is now an established treatment for adenoma of the papilla of Vater without extension along the bile duct or the pancreatic duct, and some researchers have proposed to expand the indications for this technique to mucosal cancer (1, 2). Early ampullary cancer is defined as a tumor limited to the mucosa of the ampulla (depth of cancer invasion: m) or Oddi's sphincter (depth of cancer invasion: od) regardless of the presence or absence of lymph node metastasis (3), which corresponds to pT1 of the WHO classification (4). There have been no reports on cases with carcinoma of the papilla of Vater whose cancer invasion is confined to the mucosa of the common channel and continuative epithelium of neighboring glands located in Oddi's sphincter. We report such a case treated by endoscopic papillectomy.

Case Report

A 77-year-old man was admitted to our department for evaluation of a mass in the ampullary region detected during esophagogastroduodenoscopy performed for screening purposes at a private clinic. He had undergone appendectomy for acute appendicitis at the age of 12 and gallstones had been detected when he was 73 years old. He had no particular family history such as familial adenomatosis coli and no

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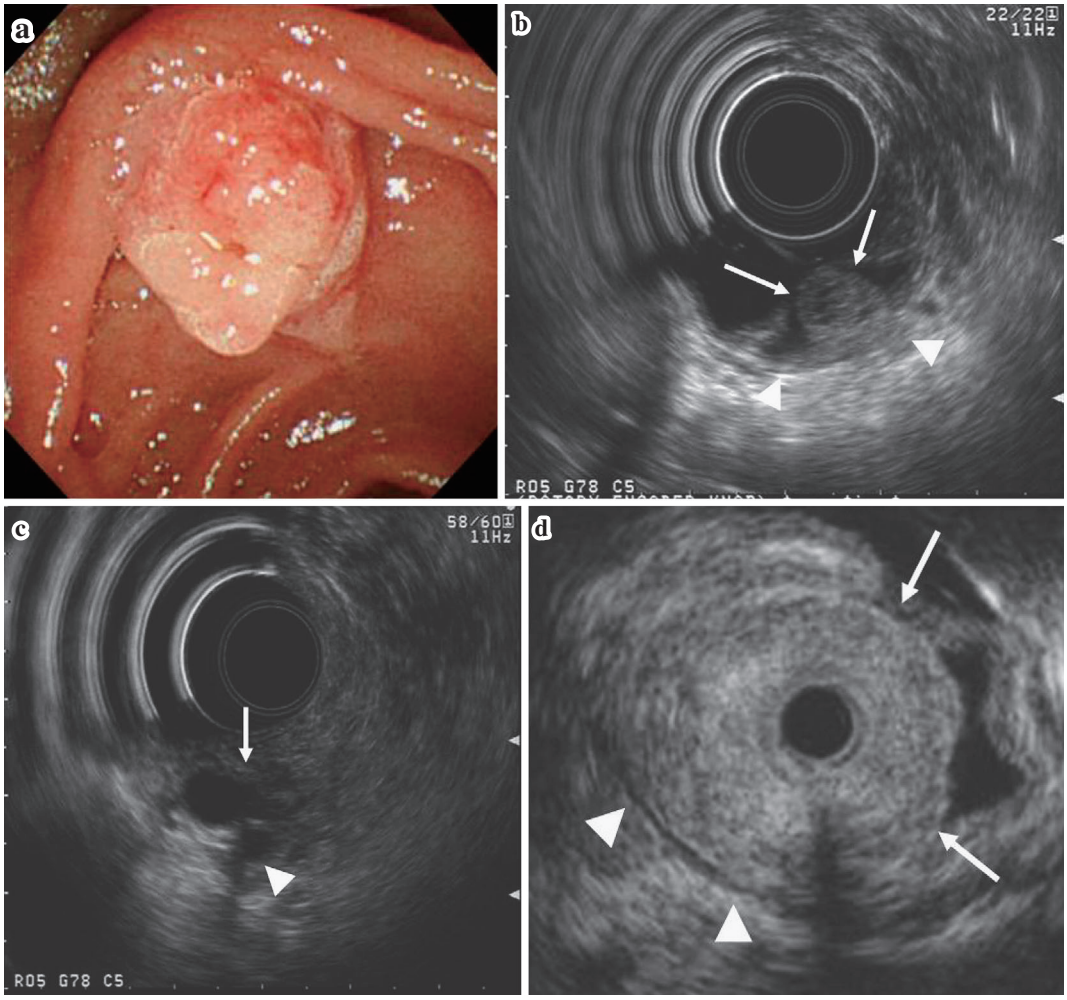

Figure 1. **a: Duodenoscopy revealed an exposed-type tumor mass at the ampulla of Vater. b: Endoscopic ultrasonography revealed a hypoechoic mass (arrow) showing no invasion of the duodenal muscularis propria (arrowhead). c: The hypoechoic mass showed no invasion of the bile duct terminal (arrow), and main pancreatic duct terminal (arrowhead). d: Intraductal ultrasonography revealed a hypoechoic mass (arrow) showing no invasion of the duodenal muscularis propria (arrowhead).**

complaints or abnormal signs on physical examination. Laboratory data on admission showed no abnormalities concerning blood cell counts and blood chemistry including serum CA19-9 level. Transabdominal ultrasound showed no abnormalities except for gallstones. Duodenoscopy revealed an exposed reddish mass in the papilla of Vater (Fig. 1a), which was diagnosed by biopsy as well-differentiated adenocarcinoma. Endoscopic ultrasonography delineated a 10 mm-sized hypoechoic mass in the papilla of Vater without invasion of the duodenum, pancreas, bile duct terminal, and main pancreatic duct terminal (Fig. 1b, 1c). ERCP showed no dilatation of the bile duct and the main pancreatic duct. On transpapillary biliary intraductal ultrasonography, no invasion of the pancreas, muscularis propria of the duodenum, bile duct, or pancreatic duct was visualized (Fig. 1d). Based on these findings, the lesion was diagnosed as early stage carcinoma of the papilla of Vater without extension along the bile and pancreatic ducts, and endoscopic papillectomy was carried out following his informed consent. His course was uneventful and oral intake of liquid and food was resumed 2 days after and 3 days after, respectively. In the resected specimen, a whitish exposed-type tumor, 10 mm×10 mm in size, was recognized in the ampulla of Vater. Histological examination verified well-differentiated tubular adenocarcinoma (tub1) in ampullary portion of the duodenum (Ad) area, extending into the common channel of the ampulla (Ac), ampullary portion of the pancreatic duct (Ap), and ampullary portion of the bile duct (Ab) (Fig. 2a). The tumor cells were diffusely positive for p53 staining in Ad region (Fig. 2b). No lymphatic permeation or vascular involvement was identified. There were glands with cancerous epithelium in Oddi's sphincter (Fig. 2c). These findings were considered replacement of the epithelium of preexisting glands (m-God), not cancer invasion, due to the presence of front formation (Fig. 2d)). The final histological diagnosis of the lesion according to the General Rules for Surgical and Pathological Studies on Cancer of the Biliary Tract by the Japanese Society of Biliary Surgery (3) was 10

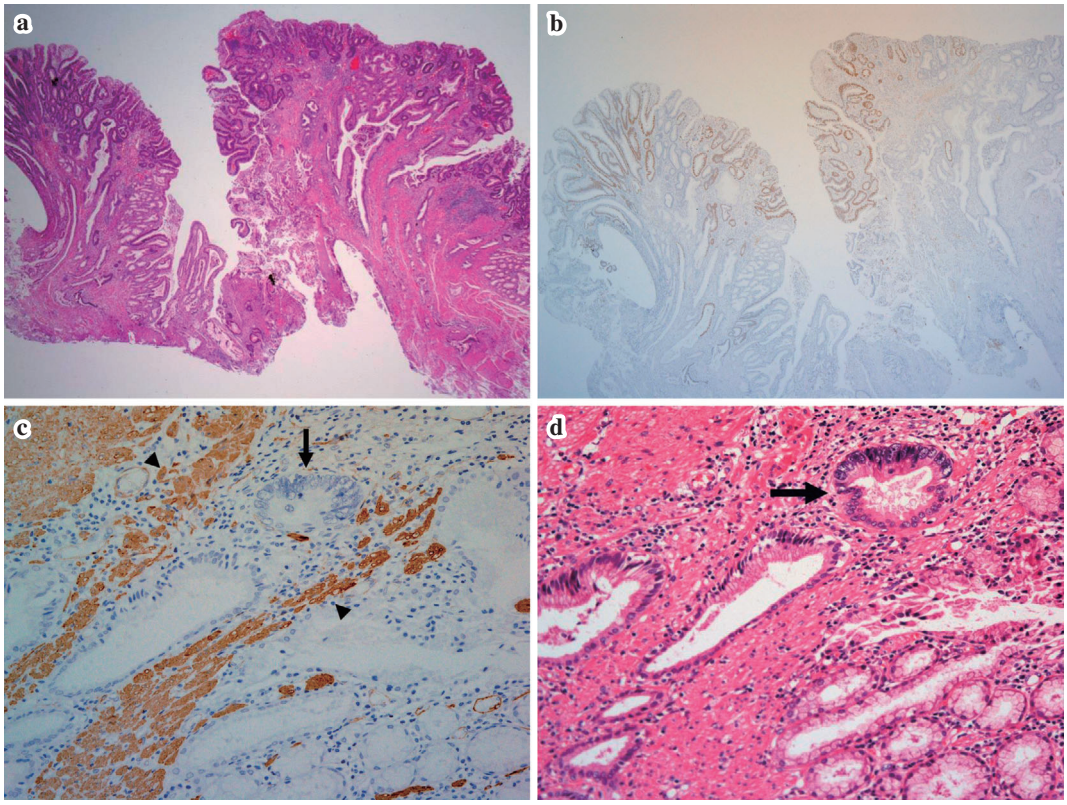

Figure 2. **a: Low-power view of the resected specimen showed tubular adenocarcinoma in the ampullary portion of the duodenum (Ad) area, extending into the common channel of the ampulla (Ac), the ampullary portion of the pancreatic duct (Ap), and the ampullary portion of the bile duct (Ab) [Hematoxylin and Eosin staining, ×1.25]. b: The tumor cells were diffusely positive in Ad region (p53 staining, ×5). c: There were glands with cancerous epithelium (arrow) in Oddi's sphincter (arrowhead) (immunohistochemical staining for α-smooth muscle actin, ×25). d: Front formation (arrow) was confirmed (Hematoxylin and Eosin staining, ×25).**

mm, tumor-exposed-type, pat Adcpb, tub1, m-God, PancX, du0, em1, ly0, v0. According to the WHO classification (4), the histological staging of the tumor was pT1. Additional surgical intervention was discussed with the patient, but he refused further surgery. Duodenoscopy with biopsy one month after the treatment revealed no residue of cancer cells in and around the orifices of the bile and pancreatic ducts. He has been doing well for two years since treatment with no clinical, endoscopic, or histological (by biopsy) evidence of recurrence.

Discussion

Pancreaticoduodenectomy has long been the standard treatment for neoplasms of the papilla of Vater. On the other hand, endoscopic papillectomy is, recently, increasingly indicated for patients with adenoma of the papilla of Vater without extension into the bile and pancreatic ducts. Endoscopic papillectomy for early cancer of the papilla of Vater confined to the region is still controversial and only a few reports have been published in the literature. Ito et al (1, 2) suggested the possibility of endoscopic treatment in a patient group whose cancer extension is confined to the mucosa of the structure of the papilla of Vater based on the histological and chronological results of surgically resected cases. Accurate preoperative staging for ampullary cancer is necessary for making therapeutic decisions. EUS and IDUS can provide reliable information for making therapeutic decisions. Ito et al (5) reported that the accuracy of EUS and IDUS in T staging was 80% and 100%, respectively, and that in ductal infiltration of the bile duct and the pancreatic duct was all correctly diagnosed by EUS and IDUS in 10 patients who underwent endoscopic papillectomy. However, minimal invasion of Oddi's sphincter is difficult to diagnose, even by these modalities, and histological assessment of the resected specimen is extremely important.

In this particular case, glands with cancerous epithelium were recognized not only in the mucosa of the common channel but in the continuative epithelium of the neighboring glands in Oddi's sphincter. Whether this finding represented cancer invasion or not is a critical issue for patient management. Although Ohta and Takazaki (6) reported that the risk of nodal metastasis is low when cancer does not invade beyond Oddi's sphincter in carcinoma of the papilla of Vater, some researchers have reported a higher incidence of lymphatic permeation (22%) and nodal metastasis (10%, 11%) in cases of invasion of Oddi's sphincter (1, 7). In the present case, invasion beyond the basement membrane into

Oddi's sphincter was not observed. Furthermore, as mentioned above, front formation was confirmed in the epithelium of the glands. These findings are quite similar to those of early gallbladder (mucosal) cancer showing extension along the epithelium of Rokitansky-Aschoff sinuses (RAS), the prognosis of which is the same as that of simple mucosal cancer (8). Our search of the literature from 1983 to 2009 using PubMed with the keywords "cancer of the papilla of Vater", "ampullary cancer", "ampullary tumor", "ampullary neoplasm", and "endoscopic papillectomy" found no reports describing cancer of the papilla of Vater invading Oddi's sphincter. Furthermore, no reports were identified with the addition of a keyword "cancer invading Oddi's sphincter" or "m-God ampullary cancer", meaning that few have been described concerning m-God ampullary cancer to date. Carcinoma of the papilla of Vater confined to the mucosa and continuative epithelium of glands in Oddi's sphincter (m-God) is defined as mucosal cancer according to the General Rules for Surgical and Pathological Studies on Cancer of the Biliary Tract by the Japanese Society of Biliary Surgery (3). As accepted in gallbladder cancer, in which m-RASmp and m-RASss (3) are considered and treated as mucosal cancer, there is a possibility that cancer of the papilla of Vater whose depth of invasion is m-God has no risk of metastasis, as is the case in those with invasion of the mucosa. Thus, these patients may achieve complete cure by endoscopic resection. In the present case, since treatment, no sign of recurrence has been noted for two years at follow-ups one month, 3 months, and then every 6 months. Although no surveillance program has been established, Catalano et al (9) recommend follow-up study every 6 or 12 months for at least 2 years after endoscopic resection of an ampullary tumor. Further accumulation of such cases and collection of data on long-term follow-up are awaited, for the establishment of patient care.

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