

Carcinoid Tumor of the Vater's Papilla Presenting with Chronic Pancreatitis — A Case Report —

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Summary: Carcinoid tumors are common in the duodenum except for in the Vater's papilla [1-9]. We report here a case of carcinoid tumor arising in the Vater's papilla with repeated episodes of pancreatitis. The patient is a 28 year-old-woman who had repeated abdominal pain with elevated serum amylase and had been treated as chronic pancreatitis. Computed tomography (CT) revealed a slight dilatation of the main pancreatic duct from the pancreatic head to the tail, and mild swelling of the pancreas. A submucosal tumor measuring 1.3 cm in diameter was detected in the ampulla of Vater by esophagogastroduodenoscopy (EGD), and total papillectomy was performed under the suspicious of carcinoid tumor. The tumor was not encapsulated, 1.0 cm in diameter, undefined, and whitish in color. Histologically monomorphic tumor cells with lightly eosinophilic cytoplasm and round nuclei proliferate in trabecular and solid patterns. Immunohistochemically tumor cells were positive for neuron - specific enolase, chromogranin A and synaptophysin, and the tumor was diagnosed as carcinoid tumor. It should be noted that carcinoid tumor in the ampulla may occur with initial signs of acute or chronic pancreatitis.

Key words carcinoid tumor, Vater's papilla, chronic pancreatitis

INTRODUCTION

In 1888, Lubarsch reported the first case of a carcinoid tumor as a lesion of the ileum [10]. In Western countries the appendix vermiformis is the most common location (approximately 60% of all cases) for carcinoids of the gastrointestinal tract, followed by the distal small intestine, the rectum, and stomach [11-14]. Ampullary carcinoids have been found to account for less than 0.3% of all gastrointestinal carcinoids and frequently are associated with von Recklinghausen's disease [6,15,16]. Whereas in Japan, the rectum is the most common location (36% of all carcinoid) for carcinoid, followed by the stomach (27.3%) and the duodenum (14.9%) [17]. Carcinoid tumor in the ampulla of Vater is also very rare in Japan [4-9]. Shimomura et al. [5] reviewed 40

cases of carcinoid tumor of Vater's papilla in Japan, and only 3 cases and 1 case were associated with acute and chronic pancreatitis, respectively. We report rather rare case of carcinoid tumor of the Vater's papilla in a young woman presenting with repeated episodes of chronic pancreatitis as initial signs.

CASE REPORT

A 28-year-old woman was pointed out an elevated serum amylase level (200 U/L) at the examination for abdominal pain 1 year ago. Three months later she complained of abdominal pain again with elevated serum amylase, and abdominal computed tomography (CT) demonstrated a mild dilatation of the main pancreatic duct. Although chronic pancre-

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Abbreviations: CT, computed tomography; EGD, esophagogastroduodenoscopy; ERCP, endoscopic retrograde cholangiopancreatography; US, ultrasonography.

atitis was suggested, no medical treatment was given. Eight months later she admitted to the hospital because of severe abdominal pain. On physical examination at the admission, cafe au lait spots, icterus and lymph node swelling were not seen. Serum amylase and Pancreatic-amylase were 270 U/L (normal 50-159 U/L) and 196 U/L (normal 19-81 U/L), respectively. The other laboratory data were within the normal ranges (Table 1). Abdominal ultrasonography (US) demonstrated a mild dilatation of the main pancreatic duct from the head to the tail. Submucosal tumor measuring 1.3 cm in diameter at the ampulla of Vater was detected by CT, and it was enhanced by contrast enhancing CT (Fig. 1A). Esophagogastroduodenoscopy (EGD) also disclosed a

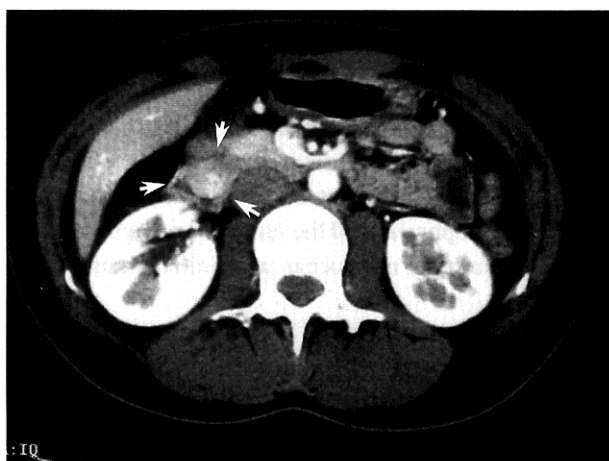


Fig. 1A. Abdominal CT. Submucosal tumor of the duodenum was enhanced.



Fig. 1B. EGD revealed a submucosal tumor measuring 1.3 cm in diameter in the maximum size in the ampulla of Vater.



Fig. 1C. ERCP. Slight dilatation of the common bile duct was detected. The main pancreatic duct was not detected.

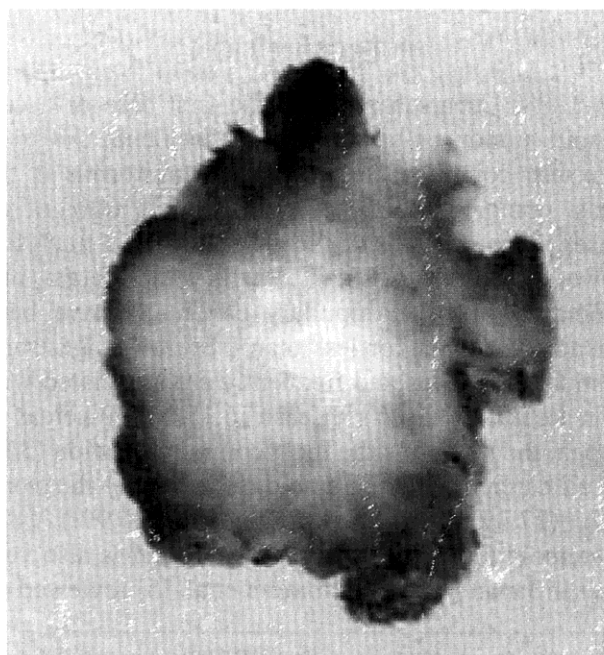


Fig. 2. Cut-surface of the resected tumor. The tumor was undefined, whitish in color and hard in consistence.

submucosal tumor with smooth surface at the ampulla of Vater (Fig. 1B). Endoscopic retrograde cholangiopancreatography (ERCP) showed slight dilatation of the common bile duct as well, but the main pancreatic duct was not demonstrated (Fig. 1C).

Although endoscopic biopsy failed to obtain the tumor tissue, carcinoid of the Vater's papilla associated with chronic pancreatitis was suspected, and total papillectomy was performed by local surgical resection.

Pathological findings

Grossly, an undefined tumor, 1.0 cm in diameter, whitish in color, hard in consistence, was located in

the ampulla of Vater with an infiltration into the adjacent tissue. There were no hemorrhage and necrosis in the tumor (Fig. 2). Histologically, monomorphic tumor cells with lightly eosinophilic cytoplasm, round nuclei and few mitotic figures, proliferated in a trabecular pattern (Fig. 3A), and almost obstructed the common bile duct and the main pancreatic duct. Immunohistochemically tumor cells were positive for chromogranin - A (Fig. 3B), neuron - specific enolase and synaptophysin. The tumor invaded into Oddi's sphincter (Fig. 4A), the muscularis propria of the duodenum, the main pancreatic duct, and the intrapancreatic common bile duct. But no stenosis was seen in the intrapancreatic common bile duct. The epithelium of the main pancreatic duct showed

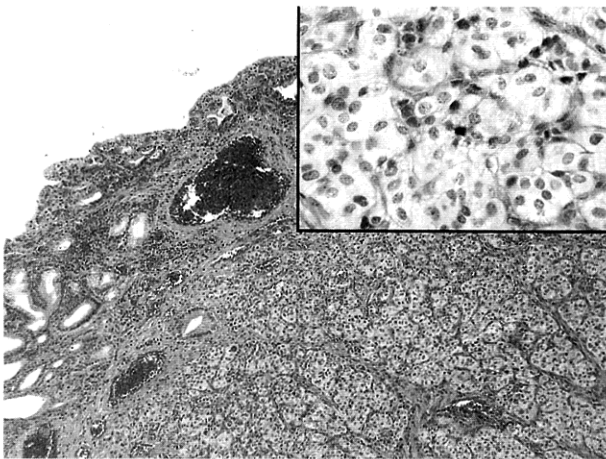


Fig. 3A. Monomorphic tumor cells are proliferating in trabecular patterns in the submucosal layer of the ampulla of Vater. (H & E stain $\times 50$, (inset) $\times 200$)

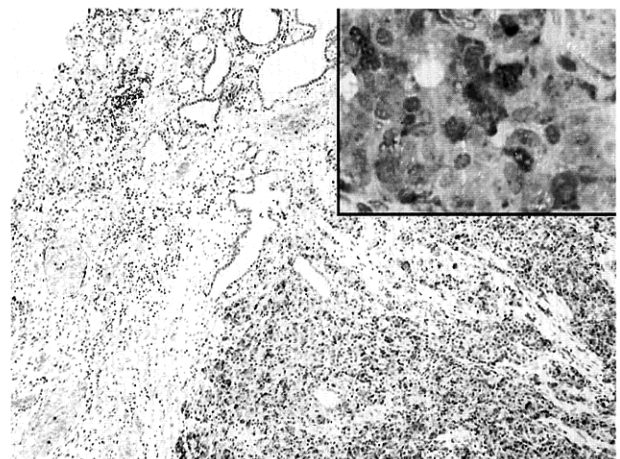


Fig. 3B. Immunohistochemically, tumor cells are positive for chromogranin-A. ($\times 50$, (inset) $\times 200$)

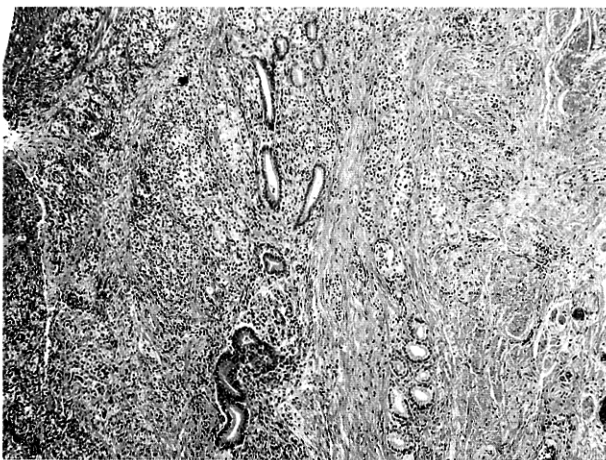


Fig. 4A. Tumor cells invaded into Oddi's sphincter. (H & E stain $\times 50$)

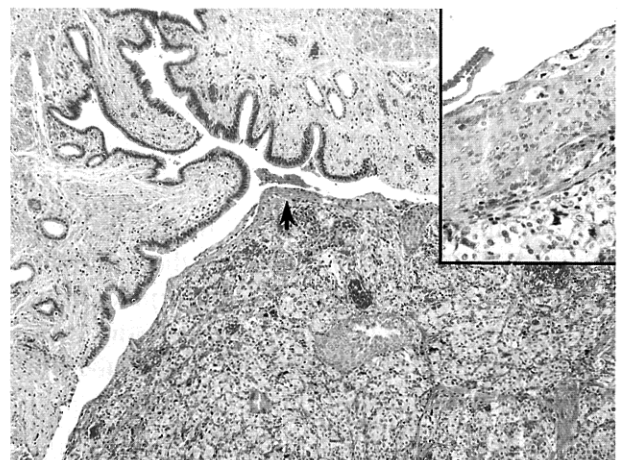


Fig. 4B. Tumor invaded into the main pancreatic duct, and a part of the epithelium showed squamous metaplasia. (H & E stain $\times 50$, (inset) $\times 200$)

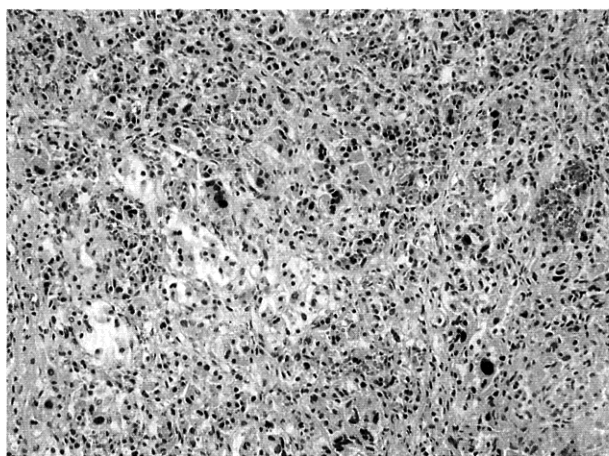


Fig. 5A. The infiltrating carcinoid into the surrounding tissue shows a higher atypism and pleomorphism. (H & E stain $\times 100$)

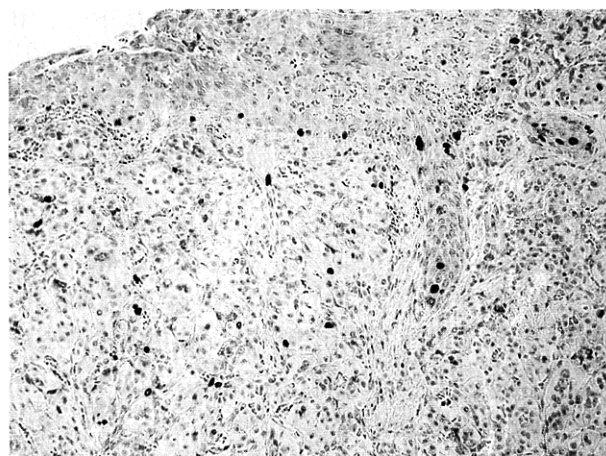


Fig. 5B. Immunostain for Ki-67. The labelling index was 4.9% in the infiltrating carcinoid. ($\times 100$)

TABLE 1.
Laboratory data on admission

[Hematology]		[Biochemistry]	
WBC	4,700/mm ³	T. P	6.9 g/dl
RBC	406 $\times 10^4$ /mm ³	Alb	4.4 g/dl
Hb	12.9 g/dl	T. Bil	0.63 mg/dl
Plt	18.8 $\times 10^4$ /mm ³	D. Bil	0.12 mg/dl
[Tumor marker]		GOT	26 U/l
CEA	2.0 npg/dl	GPT	41 U/l
CA19-9	17.5 U/l	LDH	155 U/l
Elastase-1	790 ng/dl	ALP	67 U/l
[Virus marker]		γ -GPT	66 U/l
HBsAg	(-)	Amylase	270 U/l
HCVAb	(-)	P-amylase	196 U/l
		ChE	158 U/l
		BUN	11.6 mg/dl
		Cr	0.45 mg/dl
		Na	142 mEq/l
		K	4.1 mEq/l
		Cl	110 mEq/l
		Glucose	87 mg/dl
		HbA1c	4.5%
		Lipase	318 mg/dl

squamous metaplasia (Fig. 4B). In the infiltrating tumor into the surrounding tissue, the tumor cells showed higher atypism with pleomorphic features (Fig. 5A). The labelling index of Ki-67 was 1.2% in the area of typical carcinoid and 4.9% in the tumor with pleomorphic features (Fig. 5B).

DISCUSSION

Shimomura et al. [5] reported that carcinoid of the ampulla of Vater caused severe to moderate acute

pancreatitis at the rate of only 0.1% of all acute pancreatitis and reviewed 40 cases of carcinoid tumor of Vater's papilla in Japan, and only 3 cases and one case were associated with acute pancreatitis and chronic pancreatitis, respectively. Those patients' ages ranged from 46 to 70 years old. In the present case, a young patient had been treated for chronic pancreatitis for 1 year. The presence of squamous metaplasia of main pancreatic duct epithelium and elevated serum amylase levels seem to reflect repeated inflammation in the pancreatic duct and

pancreas due to carcinoid tumor. Although carcinoids were at first considered to be a benign tumor, it is now recognized to have malignant potent. It was reported that the size of the tumor and the mitotic activity of carcinoid tumors of the ampulla of Vater had no correlation with the metastatic potential. It was also described that carcinoid tumors in the Vater's papilla have worse prognosis than those in the other gastrointestinal tracts [1]. Ricci [3] also reported that patients with ampullary carcinoids less than 2.0 cm in diameter had lymph node metastasis and pancreaticoduodenectomy might be the treatment of choice for carcinoid of the ampulla of Vater. It was reported that the Ki-67 labeling index of carcinoid in the lung ranges from 0.2% to 2% [18-20]. In the present case, the tumor showed an infiltrating growth and invaded into Oddi's sphincter, the muscularis propria of the duodenum, the main pancreatic duct and the intrapancreatic common bile duct. In addition, the infiltrating area with higher atypism and pleomorphic features shows relatively higher labelling index of Ki-67 [21]. As a result of that, it is suggested that carcinoid tumor in the present case may have a higher proliferative activity than typical carcinoids. It is important to note that carcinoid tumor in the ampulla may occur with initial signs of acute or chronic pancreatitis and may have a malignant potent. Diagnostic imagings should be inevitable for young patients with pancreatitis of unknown cause.

Although we follow this patient once a month for 1 year, we do not find the recurrence or metastatic tumor.

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