

CASE REPORT

A patient with octopus pot-shaped cardiac cancer that metastasized to multiple organs

Tatsuhiko Shiraishi^{*}, Ichiro Shimizu^{**}, Takahiro Horie^{*}, Michiyo Okazaki^{*}, Momoko Teraoka^{*}, Kazunori Takeichi^{*}, Kouzou Uehara^{*}, Kensuke Fujiwara^{*}, Soichiro Fujiwara^{*}, Hirofumi Yamamoto^{*}, Arata Iuchi^{*}, Shingo Wakatsuki[†], and Susumu Ito^{**}

^{*} Department of Internal Medicine, Miyoshi Prefectural Hospital, Tokushima, Japan; ^{**} Department of Digestive and Cardiovascular Medicine, and [†] Department of Human Pathology, Institute of Health Biosciences, The University of Tokushima Graduate School, Tokushima, Japan

Abstract : A 71-year-old male was admitted for abdominal fullness. The condition rapidly deteriorated in a short period (3 weeks), and the patient died. Autopsy revealed a protruding lesion measuring about 3 cm with erosion measuring 5 mm in diameter immediately below the esophago-gastric conjugation site, suggesting primary cardiac undifferentiated adenocarcinoma. In the primary focus, changes on the mucosal surface were almost normal. However, below the mucosa, infiltration of cancer cells was observed in an approximately 3 cm area along the gastric wall. Simultaneously, the site of infiltration was markedly increased in deep areas. Extraserous infiltration was observed. The morphology was special, and resembled an octopus pot, a trap used to catch octopuses in Japan, with a narrow top and a broad base. In our patient, metastatic lesions were detected in multiple organs, including the stomach. *J. Med. Invest.* 52 : 122-125, February, 2005

Keywords : octopus pot-shaped cardiac cancer ; metastasis.

INTRODUCTION

It is frequently observed that early cardiac cancer shows marked atypia and marked deep infiltration of cancer cells with less marked extended infiltration of cancer cells on the mucosal surface (1-5). We encountered a patient in whom undifferentiated cardiac cancer with erosion measuring 5 mm in diameter showed deep infiltration involving the extraserous area, and metastasized to multiple organs, following a rapid change in an extremely short period. In the present patient, the morphology was special, and octopus pot-shaped (oc-

topus pot : a trap used to catch octopuses in Japan, with a narrow top and a broad body). Although changes on the mucosal surface were extremely less marked, a protruding lesion measuring about 3 cm in diameter was detected below the mucosa.

CASE REPORT

The patient was a 71-year-old male. In November 2002, the patient was referred to our department for abdominal fullness and 4 kg weight loss in 1 month. Physical examination did not reveal any abnormal findings in the thoracic or abdominal regions. Palpation did not reveal any abnormalities in the superficial lymph nodes. On admission, hematology showed that the alkaline phosphatase level (normal range ; 100-340 IU/l) was abnormally high (3,356 IU/l, isozyme:

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Address correspondence and reprint requests to Ichiro Shimizu, Department of Digestive and Cardiovascular Medicine, Institute of Health Biosciences, The University of Tokushima Graduate School, Kuramoto-cho, Tokushima 770-8503, Japan and Fax : 81-88-633-9235.

Table 1. Laboratory findings on admission

Peripheral blood		Serological test	
WBC	6,560 cells/ μ l	CRP	0.2 mg/dl
RBC	445 \times 10 ⁴ cells/ μ l	CEA	1.9 ng/ml
Hb	13.6 g/dl	CA-19-9	3.59 U/ml
Ht	39.0%	SCC antigen	7.1 ng/ml
Plt	17.8 \times 10 ⁴ cells/ μ l	PSA	0.935 ng/ml
Blood chemistry		sIL-2 R	1310 U/ml
TP	6.7 g/dl		
Alb	4.2 g/dl		
ALT	12 IU/l		
AST	21 IU/l		
LDH	194 IU/l		
ALP	3356 IU/l		
	Isozyme type 2 28.0%		
	type 3 70.0%		
	type 5 1.8%		
γ -GTP	24 IU/l		
T-bil	0.8 mg/dl		
T-cho	224 mg/dl		
BUN	13.2 mg/dl		
Cre	1.2 mg/dl		

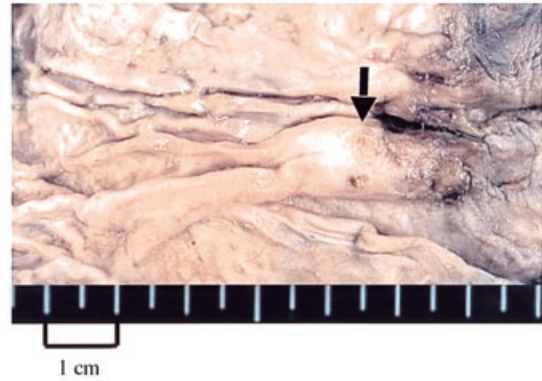


Fig. 2. Autopsy findings
A protruding lesion measuring about 3 cm in diameter is detected on the lesser curvature of the cardiac region. Fold assimilation and erosion measuring 5 mm in diameter are observed (arrow).

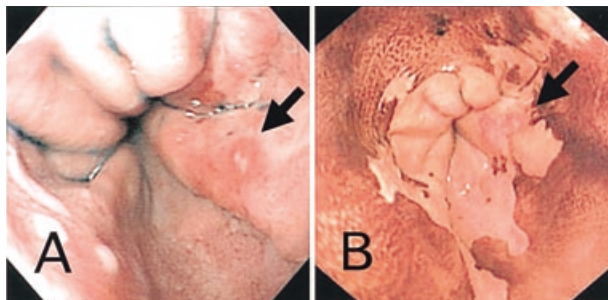


Fig. 1. Endoscopy of the upper digestive tract
A : A slightly protruding lesion is detected on the gastric mucosa on the lesser curvature immediately below the esophago-gastric mucosal junction. At the peak, erosion measuring 5 mm in diameter is detected (arrow).
B : Findings on Lugol staining at the same site.

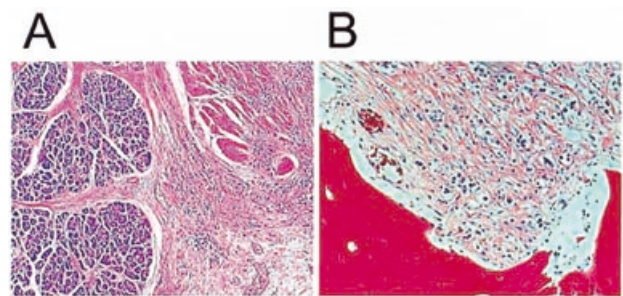


Fig. 3. Findings of metastasis into pancreas (A) and bone marrow (B) (H & E stain, Original magnification \times 20)

type 3-dominant). The levels of tumor markers, such as squamous cell carcinoma (SCC) antigen (<1.5 ng/ml) and soluble interleukin-2 receptor (sIL-2R)(145-519 U/ml), were abnormal (7.1 ng/ml and 1,310 U/ml, respectively). However, there were no abnormalities in other blood biochemical parameters (Table 1). Plain chest X-ray showed a node measuring 3 cm in diameter in the right inferior lung field. Thoracic computed tomography (CT) suggested lung cancer. Endoscopy of the upper digestive tract showed a molar-like protruded lesion measuring 1 cm in diameter in the middle esophagus. On staining with Lugol, the lesion was not colored. In the esophago-gastric junction, circumferential scattered erosion was observed. Furthermore, on the gastric mucosa on the lesser curvature immediately below the junction, an

erosion measuring 5 mm in diameter was noted at the peak of the slight protrusion (Fig. 1). In the gastric antral region, irregular erosion with excavation at the center was scattered. Using specimens from esophageal erosion and gastric antral erosion, biopsy was performed. Poorly-differentiated adenocarcinoma was suggested. Large intestinal endoscopy showed scattered irregular erosion with excavation at the center, as observed in the stomach. Biopsy suggested poorly-differentiated adenocarcinoma, as demonstrated in the gastric antral region. After admission, ascites markedly increased. Cytodiagnosis of ascites revealed Class V, suggesting cancerous peritonitis. Under a tentative diagnosis of esophageal, gastric, and large intestinal metastases from lung cancer, the patient's family was informed of the condition. The patient's family requested preservative treatment, and only fluid replacement was performed. Twenty-one days after admission, cardiopulmonary arrest occurred after massive vomiting. The patient died despite emergency treatment.

Autopsy revealed that a protruding lesion measuring about 3 cm, with the erosion measuring 5 mm in diameter immediately below the esophago-gastric junction was primary undifferentiated adenocarcinoma (Fig. 2). Metastatic foci were detected in the esophagus,

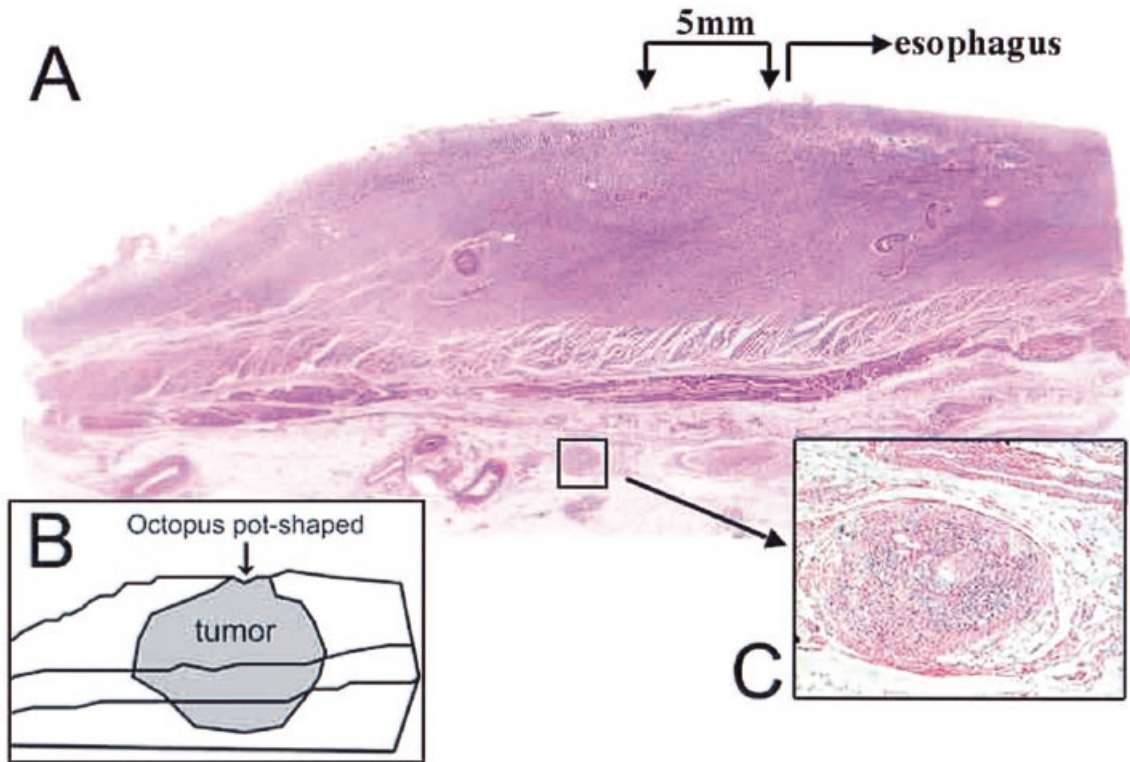


Fig. 4. Findings of pathological samples
 (A) Outgrowth of atypical cells is observed in an area of about 3 cm involving the inherent mucosal layer and inherent muscle layer, with a primary erosive lesion measuring 5 mm in diameter (arrow). (H & E stain, Original magnification X4)
 (B) The morphology bears a likeness to an octopus pot.
 (C) Lymphatic invasion and perineural infiltration are marked. Infiltration involved the serous membrane. (H & E stain, Original magnification X20)

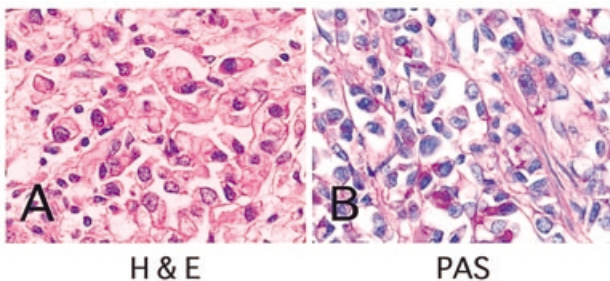


Fig. 5. Findings of pathological samples
 (A) In tumor cells, the cytoplasm is relatively abundant. Neither outgrowth of the stroma nor fibrosis is observed.
 (B) On periodic acid Schiff stain (PAS), a positive reaction is obtained. Immunohistochemically, cytokeratin (CK)7(+), CK20(-), carcinoembryonic antigen (CEA)(+), and carbohydrate antigen (CA)19-9(-) reactions are noted. (Original magnification X100)

stomach, pancreas, small intestine, large intestine, peritoneum, pleura, lymphnodes, and bones (Fig. 3). In the liver, there were no metastatic foci. Furthermore, in the lung, squamous cell carcinoma was detected. However, the lesion involved only the lung. On the mucosal surface of the primary focus, a 5-mm change was observed. Below the mucosa, infiltration of cancer cells involved an approximately 3-cm area along the gastric wall (Fig. 4A). The morphology bears a likeness to an octopus pot (Fig. 4B). Simultaneously, marked infiltration was noted in the deep direction and involved

the serous membrane (Fig. 4C). Atypical cells with relatively abundant cytoplasm, which mainly proliferated in the inherent mucosal layer to the inherent muscle layer, were detected. Perineural infiltration was marked with lymphatic invasion into all over the place (the gastric, mediastinal, peripancreatic, mesenteric and pulmonary hilar lymphnodes). Neither stroma nor fiber components were detected (Fig. 5).

DISCUSSION

It is frequently observed that early cardiac cancer shows marked atypia and marked deep infiltration of cancer cells with less marked extended infiltration of cancer cells on the mucosal surface (1-5). In particular, undifferentiated cardiac cancer shows submucosal infiltration in the initial stage. Even in early cardiac cancers of type IIc lesions measuring 1 to 3 cm, submucosal infiltration is frequently detected (1-5).

In the present patient, only the cardiac lesion showed cancer infiltration into serous membrane among undifferentiated adenocarcinoma foci, which were positive for periodic acid Schiff stain (PAS) and expressed cytokeratin (CK) 7, but not CK 20. The negative-CK 7 and

positive-CK 20 expression pattern have known to be highly characteristic of colorectal cancer (6). On the other hand, it is reported that the proportion of positive-CK7 and negative-CK 20 expression was highest in the gastric cancer (7). Moreover, the present case had no findings of Barrett epithelium or reflux esophagitis in the esophagus. Thus, the cardiac cancer is primary with metastasis to multiple organs, the findings of which were consistent with the characteristics of cardiac cancer. Briefly, undifferentiated cardiac cancer with the erosion measuring 5 mm in diameter infiltrated deeply, involving the extraserous area. However, the main octopus pot-shaped protruding lesion measuring about 3 cm in diameter showed outgrowth of tumor cells in the inherent mucosal layer to the inherent muscle layer. In addition, among advanced gastric cancers of Borrmann type IV, linitis plastica gastric cancer is known to be an advanced cancer derived from a very small mucosal primary lesion (8-10). Undifferentiated carcinoma that develops in the gastric fundal gland infiltrates the submucosal region in the initial stage, and diffusely infiltrates the submucosal layer or deeper along the gastric wall. Marked fibrosis causes linitis plastica cancer in which the entire stomach is like a leather bottle (6-8). The tumor reported herein, however, contained a large volume of cell components, and the volume of stroma or fiber components was extremely small. Therefore, linitis plastica gastric cancer was not suggested, although deep infiltration of cancer cells was marked, and multiple organ metastasis was detected. We considered that the present patient showed a special morphology.

In our patient, early detection was difficult. It is suggested that careful follow-up of the esophago-gastric junction is needed.

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