CASE REPORT

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


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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 cardial 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 cardial cancer; metastasis.

INTRODUCTION

It is frequently observed that early cardial 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 cardial 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 (octopus 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:
Table 1. Laboratory findings on admission

<table>
<thead>
<tr>
<th>Peripheral blood</th>
<th>Serological test</th>
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</thead>
<tbody>
<tr>
<td>WBC 6,560 cells/μl</td>
<td>CRP 0.2 mg/dl</td>
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<tr>
<td>RBC 4.45×10^12 cells/μl</td>
<td>CEA 1.9 ng/ml</td>
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<tr>
<td>Hb 13.6 g/dl</td>
<td>CA-19-9 3.59 U/ml</td>
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<tr>
<td>Ht 39.0%</td>
<td>SCC antigen 7.1 ng/ml</td>
</tr>
<tr>
<td>Pt 17.8×10^12 cells/μl</td>
<td>PSA 0.935 ng/ml</td>
</tr>
</tbody>
</table>

Blood chemistry

- 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
- Iszyme 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. 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.

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, cardio-pulmonary 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,
T. Shiraishi et al.  Octopus pot-shaped cardial cancer

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 X1)
(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 (CK7(+), 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, mesenterial and pulmonary hilar lymphnodes). Neither stroma nor fiber components were detected (Fig. 5).

DISCUSSION

It is frequently observed that early cardial 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 cardial 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 cardial 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-CK20 expression was highest in the gastric cancer (7). Moreover, the present case had no findings of Barrett epithelium or reflex esophagitis in the esophagus. Thus, the cardial cancer is primary with metastasis to multiple organs, the findings of which were consistent with the characteristics of cardial cancer. Briefly, undifferentiated cardial 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 plastaica 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.

REFERENCES

7. Park SY, Kim HS, Hong EK, Kim WH: Expression of cytokeratins 7 and 20 in primary carcinomas of the stomach and colorectum and their value in the differential diagnosis of metastatic carcinomas to the ovary. Hum Pathol 33:1078-1085, 2002