

## Metastasis-Induced Acute Pancreatitis in a Patient with Small Cell Carcinoma of the Lung

Acute pancreatitis in cancer patients can be secondary to the malignant process itself or a complication of antineoplastic agent administration. However, acute pancreatitis caused by metastatic carcinoma of the pancreas is an uncommon condition with a poor prognosis. We report a case of a 63-year-old man with small cell carcinoma of the lung, who developed acute pancreatitis lately. Thirteen months earlier, he developed small cell carcinoma of the lung and received 6 cycles of chemotherapy. Abdominal CT scan showed swelling of the pancreas with multiple masses. The patient was managed conservatively and pancreatitis subsided. This case indicates that metastasis induced acute pancreatitis can be a manifestation of lung cancer, especially in small cell carcinoma.

Key Words : Pancreatitis; Neoplasm metastasis; Lung neoplasms; Carcinoma, small cell

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### INTRODUCTION

Acute pancreatitis is associated with not only primary carcinoma of the pancreas but also metastatic cancer of the pancreas in cancer patients (1, 2). Among patients with pancreatic cancer, acute pancreatitis has been reported in up to 3%. However, pancreatitis caused by metastatic carcinoma is uncommon and a review of the literature showed few reports of this condition (2, 4, 5). A variety of tumors has been reported to metastasize to the pancreas, including prostatic carcinoma, renal cell carcinoma, Hodgkin's disease, and carcinoma of the lung (3). Among them, small cell carcinoma of the lung appears to be the most common tumor in the cause of metastasis induced acute pancreatitis (1).

We recently experienced a case of acute pancreatitis associated with metastatic carcinoma to the pancreas in a patient with small cell carcinoma of the lung. There was no reasonable explanation regarding the cause of acute pancreatitis except metastasis to the pancreas. To our knowledge, no such case has ever been reported in Korea.

### CASE REPORT

A 63-year-old man was admitted with epigastric pain for

2 days. The pain was pressure-like in nature and radiated into the back. He was free from febrile sense, chills, diarrhea or nausea. Thirteen months earlier, he had developed small cell carcinoma of the lung (Fig. 1, 2) and received 6 cycles of chemotherapy with cyclophosphamide, vincristine, cisplatin and etoposide. Four months earlier, lung cancer with lymphangitic carcinomatosis recurred and he was treated with radiotherapy for 1 month. He denied any past history of diabetes, hypertension, tuberculosis or alcohol intake.

On admission, he was chronically ill-looking and cachectic. His blood pressure was 120/70 mmHg, respiration rate 25/min, and body temperature 36.5°C. Physical examination revealed coarse breathing, crackle sounds at whole lung fields and a decreased breathing sound at the right lung field. Mild to moderate tenderness was noted at the epigastrium, but there were no rebound tenderness and palpable abdominal mass. Laboratory evaluation revealed an alkaline phosphatase level 32 IU/L, aspartate transaminase 24 IU/L, alanine transaminase 18 IU/L, total bilirubin 0.6 mg/dL, amylase 966 U/L, lipase 419.2 U/L, CA 19-9 94.1 U/mL, and  $\alpha$ -fetoprotein 4.0 ng/mL. Analysis of arterial blood gas showed a pH 7.47,  $PCO_2$  33 mmHg,  $PO_2$  70 mmHg, and  $HCO_3^-$  23.5 mmol/L. He had no leukocytosis, hyperglycemia, hypercalcemia, and anemia. Chest radiography showed a poorly defined right para-hilar mass and diffuse

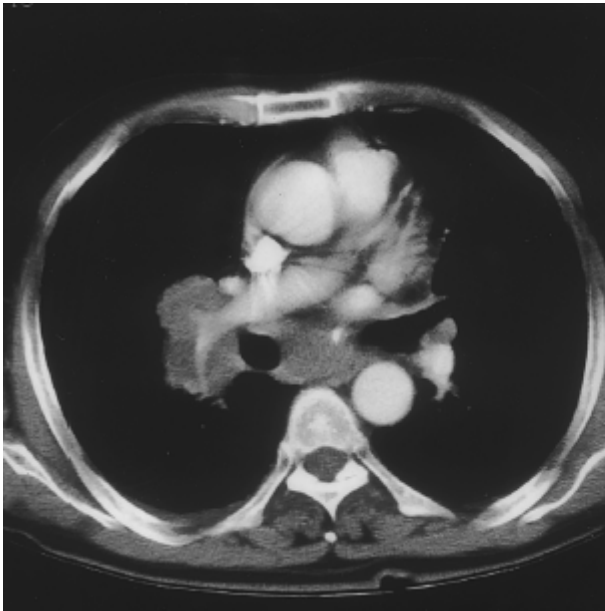


Fig. 1. Initial computed tomography of the chest showed multiple, diffuse para-aortic lymphadenopathy and lung mass at right hilum.

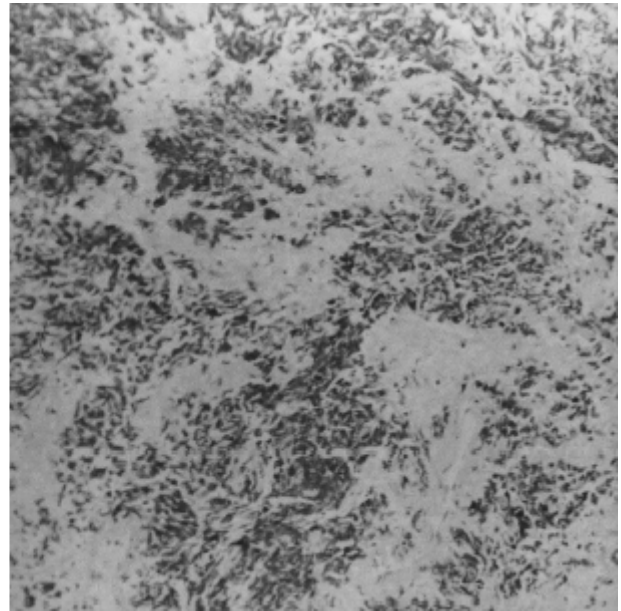


Fig. 2. Bronchoscopic biopsy finding of the right lung mass showed small cell carcinoma (H&E, ×200).



Fig. 3. Chest PA upon admission showed an irregular bulging mass at the right hilum of the lung. As compared with previous chest PA, it suggested recurrence of the previous lung cancer.

reticulonodular opacities in both lung fields (Fig. 3). Compared with previous chest PA, it suggested recurrence of lung cancer. Computed tomography (CT) of the abdomen showed multiple metastatic lesions in both lobes of the liver, the swollen pancreas, both of the adrenal glands, and spleen. Also found were superior mesenteric and splenic vein invasions (Fig. 4). Thus, acute pancreatitis secondary to

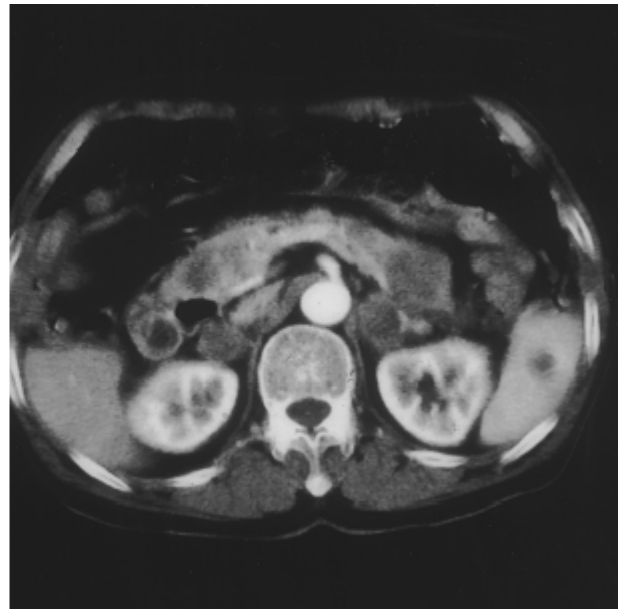


Fig. 4. Computed tomography of the abdomen showed multiple low-attenuating metastatic masses within the swollen pancreas.

pancreatic metastasis from lung cancer was diagnosed. After conservative treatment with intravenous fluid and dietary restriction, the epigastric pain improved and follow-up amylase level also decreased. However, the patient was discharged after refusing any further diagnostic study and treatment.

## DISCUSSION

Acute pancreatitis caused by metastatic carcinoma is an uncommon condition (6, 7). Lankisch et al. (8) reported that metastasis induced pancreatitis has been noted in only 1 of 250 patients with lung carcinoma. Acute metastasis-induced pancreatitis can occur as the initial presenting manifestation of a carcinoma or later in the course of the disease such as in our patient. A variety of tumors has been reported to metastasize to the pancreas, including prostatic carcinoma, carcinoma of the breast, stomach carcinoma, renal cell carcinoma, Hodgkin's disease, and carcinoma of the lung (3). Among them, the most common histologic type leading to pancreatic metastases is small cell carcinoma of the lung. Chowhan and Madajewicz (1) reported that small cell carcinoma of the lung was found in 6 of 10 patients with metastasis induced acute pancreatitis. In our case, the pancreatic metastasis also developed secondary to small cell carcinoma of the lung. However, others reported that metastasis from gastric cancer was said to be the most common nonpancreatic tumor associated with pancreatitis (1, 9, 10). Although the occurrence rate of metastases to the pancreas ranged from 20% to 40% in autopsy findings of small cell carcinoma of the lung, tumor induced acute pancreatitis developed rarely (7). The occurrence rate of metastasis induced pancreatitis is 3.3% by Chowhan and Madajewicz (1) and 7.5% by Yeung et al. (5) in small cell carcinoma of the lung.

Mechanisms implicated for the development of metastases induced acute pancreatitis, include mechanical ductal obstruction, rupture or vascular compromise secondary to tumor invasion, and compression from enlarged peripancreatic lymph nodes (2, 3). Others are infectious, metabolic, nutritional, and traumatic factors (2). The mechanism in the development of acute pancreatitis in our patient is unknown, but mechanical ductal obstruction is possible. Transient pancreatic duct obstruction may have been induced by well-defined, multiple masses in the pancreas. In our patient, endoscopic retrograde pancreatography for evaluating the pancreatic duct was not taken due to poor general condition. However, other causes of pancreatitis seem unlikely. No drugs associated with pancreatitis could be implicated prior to the onset of symptoms. Also there was no evidence of alcohol abuse, hypercalcemia, or cholelithiasis.

Acute pancreatitis in our patient was diagnosed by typical symptoms, signs, radiologic findings, and elevation of serum amylase and lipase levels. Pancreatic metastasis could be confirmed by pancreatic biopsy of pancreatic mass. But it is often difficult to obtain a tissue diagnosis in this seriously ill patient due to high morbidity and false negative rate of pancreatic biopsy (11). Therefore, diagnosis of metastases induced acute pancreatitis was made, based on clinical,

laboratory, and radiologic findings combined with evidence of disease progression elsewhere. Although histologic confirmation was not made in our case, CT scan of the pancreas combined with the clinical features was diagnostic.

The overall survival of metastasis induced pancreatitis is low because of extensive disease. Chowhan and Madajewicz (1) reported that two patients with metastatic small cell carcinoma of the lung died 2 weeks after admission. Thus, they proposed a therapeutic approach that patients with more severe symptoms and signs should receive supportive care only, although chemotherapy may be appropriate in some instances.

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