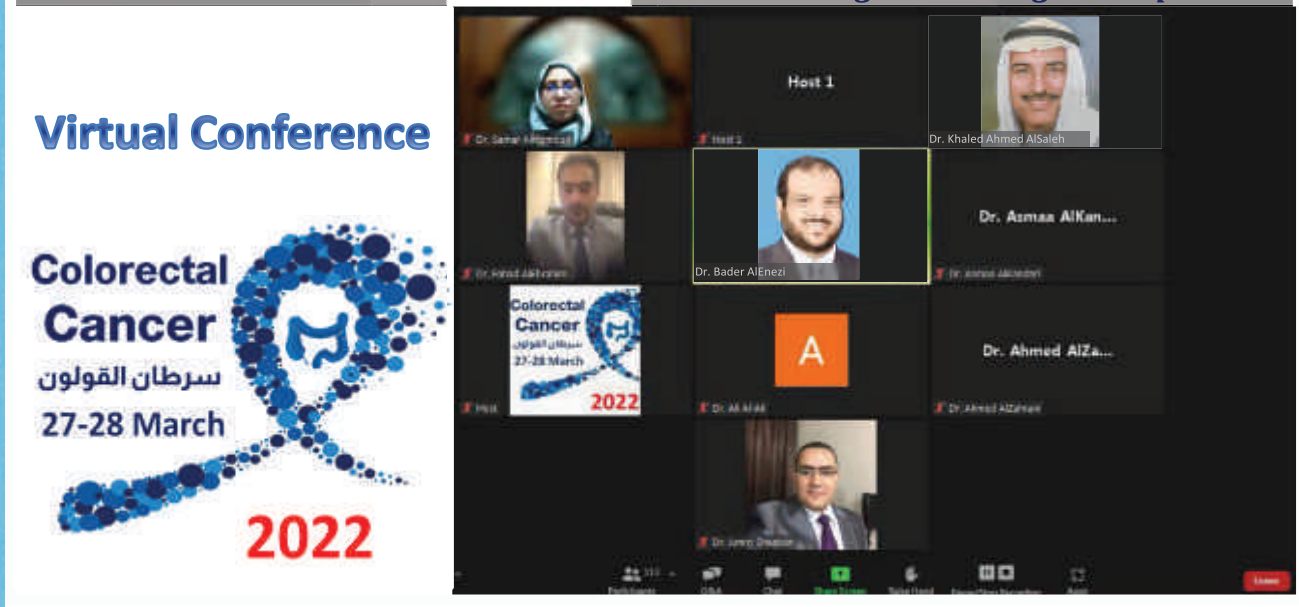
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"Cancer Control in the Eastern Mediterranean Region: Closing the Gap"



The Official Journal of the Gulf Federation For Cancer Control

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Case Report

Metastatic Pancreatic Neuroendocrine Tumor Mimicking Interstitial Lung Disease Diagnosed by Transbronchial lung biopsie: A Case Report

Aysel Sunnetcioglu[1], Buket Mermit Cilingir[1], Aysegul Demirbas[1], Irfan Bayram[2], Mesut Ozgokce [3]

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Abstract

Pancreatic neuroendocrine tumors (PNETs) are rare malignancies characterized by insidious onset and mostly present with metastasis at the diagnosis. Lung metastasis manifesting diffuse ground–glass opacity is a very rare pattern that is difficult to distinguish from nonmalignant pulmonary diseases. Recognition of this atypical metastases pattern and avoidance of this potential pitfall are crucial. We report a unique case of the Metastatic Pancreatic Neuroendocrine Tumor Mimicking Interstitial Lung Disease diagnosed by transbronchial lung biopsie

Keywords: Neuroendocrine Tumor, Metastasis, Ground–glass opacity, interstitial lung disease

Introduction

Many types of different tumors with metastatic disease have pulmonary involvement most of the time since venous drainage of the body mostly filtrated by the pulmonary capillary system[(1)]. The incidence of pulmonary metastasis in extrathoracic malignancies ranges from 20–54%[(1–2)]. Breast, colon, uterus, kidney, head, and neck cancers are the most common carcinomas metastatic to lungs [(1–4)].

Pulmonary metastases are mostly detected in the lung parenchyma or pleura and often infiltrate adjacent structures among the respiratory bronchi[(1–6)]. Typical radiologic findings of pulmonary metastases are peripherally located, multiple, round, randomly distributed nodules of varying size due to secondary hematogenous spread of malignant cells and diffuse thickening of the interstitium (lymphangitic spread)[(1–2)].

The pulmonary metastasis occasionally presents with unusual radiologic appearances, making it more difficult to distinguish from nonmalignant pulmonary diseases. Ground–glass opacity (GGO) is a rare expression of pulmonary metastasis and can be misinterpreted as interstitial lung diseases (ILD).

To our knowledge, this is the first study to describe the pancreatic neuroendocrine tumor metastasis to lung presenting unusual radiographical appearance. In this case, transbronchial lung biopsies revealed neuroendocrine tumor cells infiltrating the lung parenchyma, explaining the ground–glass appearance on chest CT imaging.

Case Report

A 60–year–old man was referred to our clinic with dyspnea and persistent cough for two months. The patient, was a non–smoker with no known allergies, had no history to suggest a connective tissue disorder as occupational or environmental exposure, drug intake or recent travel. In physical examination hypoxemia and pulmonary crackles were detected. The chest radiography showed heterogeneous opacities in both lungs, prominently in bilateral lower zones. Laboratory results revealed no leukocytosis (white blood cell count, 9.37/μL), serum chemistry values were within normal limits, and C–reactive protein was slightly elevated (14.8 mg/L). Computerized tomography (CT) scan showed heterogeneous, diffuse ground–glass opacities without consolidation, nodules, or masses in bilateral lungs (Figure 1). Overall, clinical features suggested ILD rather than malignancy.

Fiberoptic bronchoscopy was performed to confirm the preliminary diagnosis of ILD. During bronchoscopy; bronchoalveolar lavage (BAL) fluid from the right middle lobe and transbronchial lung biopsy from right lower lobe were

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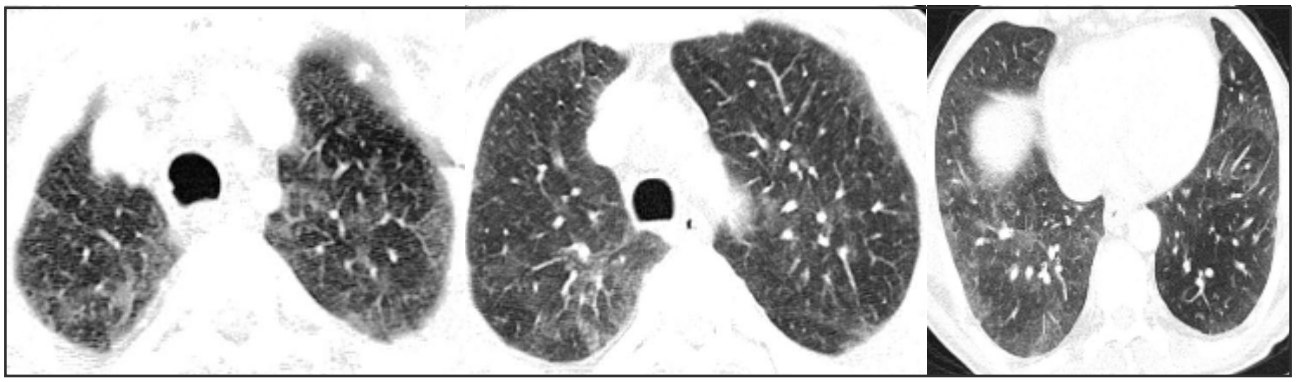


Figure 1: CT images demonstrate diffuse ground–glass opacity (GGO) in both lung.

taken and sent for analyses. BAL cultures revealed no specific pathogen, and cytology showed no evidence of malignant cells. Biopsy results showed infiltration of atypical cells with uniform hyperchromatic nucleus with large clear cytoplasm in the lung parenchyma. Immunocytochemical study was also performed to support the diagnosis. Atypical cells were highlighted by staining for neuroendocrine marker CD–56. (Figure 2). Immunohistochemistry demonstrated that the tumor cells were negative for CK20, thyroid transcription factor–1(TTF–1), PSA, S100, HMB45, Chromogranin A, Synaptophysin, PAS and dPAS. Ki–67 proliferation index was 1%. This profile indicated a neuroendocrine tumor metastasis to the lungs. Visceral cancer markers were significantly elevated while carbohydrate antigen (CA) 19–9, and CA 125 CA 13–3 and carcinoembryonic antigen (CEA) were within normal limits.

Abdominal CT scan was performed for the detection of the primary tumor. At the head of the pancreas, there was a mass about 3.5 cm. (Figure 3**)** Ultrasound–guided fine–needle aspiration biopsy of the pancreatic lesion was performed. Immunohistochemistry detected chromogranin and CD56 staining in atypical cells.

With these findings, pancreatic neuroendocrine tumor with pulmonary metastasis was diagnosed and the patient referred to oncology for treatment.

Discussion

Neuroendocrine cells are widely distributed throughout the body. Most common tissues including neuroendocrine cells are lungs, gastrointestinal tract, adrenal gland, and thyroid gland and in any of these tissues, these cells may give rise to malignant neoplasms. Pancreatic neuroendocrine tumors (PNETs) are rare malignancies, accounting for 1%–5% of all pancreatic malignancies[7–9]. Due to PNETs insidious nature most of them present with metastatic disease. Common PNET metastases occur in lymph nodes, liver, spleen, and bone[10]. Solorzano et al[11] have described metastasis to lung and brain as well.

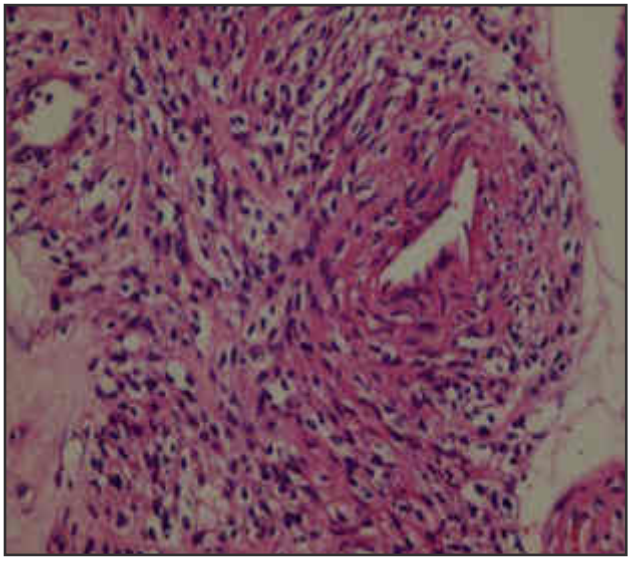


Figure 2A: Transbronchial lung biopsy showed infiltration of atypical cells with uniform hyperchromatic nucleus with large clear cytoplasm in the lung parenchyma (H & E dye, original magnification x400).

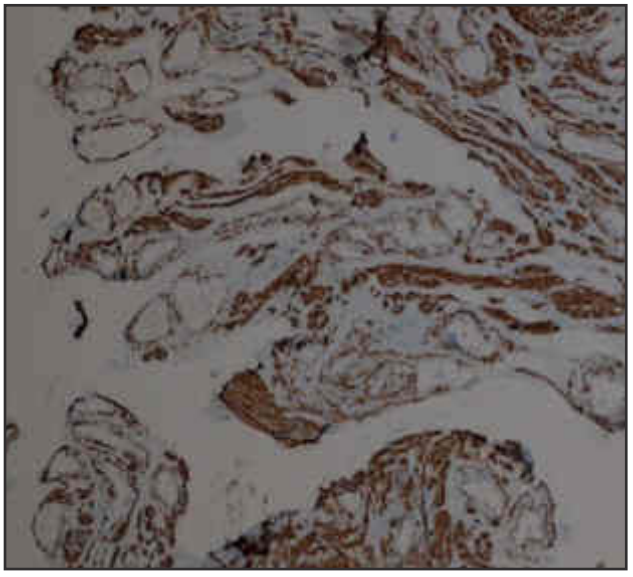


Figure 2B: Atypical cells were highligted by staining for neuroendocrine marker CD–56. (immunohistochemical staining with CD56, original magnification x100).



Figure 3: The abdominal computed tomography (CT) was observed the approximately 3.5 cm diameter mass in the pancreas head.

Pulmonary metastases expose a wide spectrum of radiologic presentations. Multiple pulmonary nodules with smooth margins are the most frequent manifestation. In general, metastatic involvement of the lung by tumor cells is rare radiographically as diffuse bilateral ground–glass opacities without nodules or masses, mimicking interstitial lung disease.

Lung metastasis exhibiting diffuse GGO is a very rare pattern[12,13] and can be misinterpreted as ILD. Therefore, Recognition of this atypical metastases pattern and avoidance of this potential pitfall are crucial. All of the clinical information, laboratory findings, and radiological evidence have to be considered. In the absence of a confident clinical diagnosis and with the possibility that differential diagnosis by lung biopsy might change treatment plans, lung biopsy is recommended for the diagnosis of ILD[14]. In this case, transbronchial lung biopsy was performed for diagnosis.

In summary, this case shows an unmatched exhibition of the metastatic pancreatic neuroendocrine tumor and highlights the importance of good differential diagnosis in the initial evaluation of a patient with supposed iLD.

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Declaration of interests

We declare no competing interests.

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