



Pleural involvement and dyspnea as primary presentations of an occult gastric cancer: a case report

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Pleural involvement and dyspnea as primary presentations of an occult gastric cancer: a case report

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Abstract

Herein, we reported a case of malignant pleural effusion as the initial metastatic presentation of occult gastric cancer in a 52-year-old diabetic woman. This is the first report of gastric cancer metastasized to pleura as a primary presentation. The pathologic results of adenocarcinoma pleural specimens were indicative of an undifferentiated cancer. Based on the results of immunohistochemistry, we suggested the metastasis of gastric cancer. For patients with such distinct clinical presentations, it would be suitable to study gastric cancer as one of the probable primary sites.

Keyword: Gastric Cancer, Occult Gastric Cancer, Pleura, Case report



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Introduction

Gastric cancer is the third leading cause of mortality worldwide and the greatest common malignancy in Eastern Asia (1). Gastric cancer accounts for about 10% of invasive cancers throughout the world. This cancer is caused by rapid or abnormal cell growth within the lining of the stomach, forming a tumor. At an advanced stage, this disease can metastasize to the liver and distant lymph nodes, and in rare cases, it can affect the bone, lung, brain, and leptomeningeal space (2).

Pleural effusion is generally seen in the already diagnosed gastric cancer patients (3). Pleural involvement, although often asymptomatic, is an ominous finding usually representing widespread metastases. Malignant pleural effusion frequently represents the first evidence of cancer (4). In this case report, we presented an unusual case of pleural involvement and dyspnea as the primary presentations of occult gastric cancer.

Case presentation

A 52-year-old diabetic woman referred with the complaint of progressive dyspnea without phlegmy cough, fever, or epigastric pain. She had decreased sounds in the right lung and presented with similar symptoms observed one month earlier, when she received chest tube due to pleural effusion and discharged after the temporary improvement of the symptoms. She had the past medical history of diabetes mellitus for 10 years. However, she referred again with symptoms of relapse without fever, weight loss, and sweating.

The patient was prescribed metformin and glibenclamide. Both lungs were accumulated with an excessive amount of fluid; therefore, chest tube was reinserted, and pleural fluid was sent for examination. Pleural fluid analysis distinguished effusion as an exudate; however, the etiology was not clear. The results of adenosine deaminase test and polymerase chain reaction were negative for tuberculosis. Further evaluations revealed pulmonary involvement and lung adhesions, especially in the right lung.

The patient was transferred to the Intensive Care Unit to receive more support due to the development of symptoms. Because of patient's history of pneumonia and her diabetes, she was suspected of parapneumonic effusion. However, the patient's reduced reflexes were suggestive of diabetic polyneuropathy. Doppler arterial and venous ultrasonography of both lungs showed that the common femoral vein, superficial femoral vein, and popliteal vein had a normal arterio-venous blood flow and proper augmentation.

The abdominal ultrasound revealed bilateral pleural effusion; however, no deep vein thrombosis symptom was detected. The patient was candidate for video-assisted thoracoscopic surgery (VATS) due to the failure of the chest tube in chest drainage. The VATS revealed fibrin deposition and greater adhesion in the right pleura. The adhesions were eliminated, and the pleural space was evacuated. Sufficient specimen was collected from various pleural points.



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However, two days post-surgery, the patient's respiratory function was deteriorated, and her level of consciousness was decreases; as a result, she was intubated. The patient was subjected to continuous supportive measures; nonetheless, no change was observed in her condition, and no specific diagnosis was made. The results of the pathologic analysis of adenocarcinoma pleural specimens were indicative of an undifferentiated cancer.

Based on the immunohistochemistry (IHC) results, the metastasis of gastric cancer was suggested. The patient underwent an endoscopy, revealing a gastric lesion. However, due to the general condition of the patient, no surgical plan was considered for her. A consultation was made with a team of oncologists, suggesting no chemotherapy given the general condition of the patient. Table 1 summarizes the results of the laboratory investigations of the patient. The patient was prescribed ciprofloxacin, vancomycin, colistin (2.5 million UI through intravenous infusion [IV]) and tazocin (4.5 g IV).

Table 1. Laboratory findings of the patient

Test		Result
Arterial blood gas test	pH	7.349 mm hg (low)
	PCO ₂	47.4 mm hg (high)
Complete blood count	White blood cells	15.2 x1000/mm ³ (high)
	Red blood cells	3.68 mi11/mm ³ (low)
	Hematocrit	32.5% (low)
	Mean corpuscular hemoglobin concentration	31.7% (low)
	Mean platelet volume	8.4 (low)
	Platelet larger cell ratio	15.3% (low)

Discussion



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Metastatic gastric cancer has an unknown epidemiology with distinct characteristics. Metastasis can be fatal and result in the creation of mass effect and failure of physiological homeostasis. The incidence of gastric cancer presenting with metastases has increased to over 40% during the last two decades (5). Gastric cancer can metastasize to the lung, which is a rare cause of malignant pleural effusion, accounting for about 2% of malignant pleural effusions (6).

According to the literature, 2.8-7.2% of all gastric cancers diagnosed at advanced stage are pathologically more invasive and have deeper progression, and involve more lymph nodes, compared to other cancers (7, 8). Yoon et al. reported a case of malignant pleural effusion as the initial metastatic presentation of occult gastric cancer in a young woman (6). Pleural metastasis and malignant pleural effusion co-occur with a variety of cancers. Parapneumonic effusion is a type of pleural effusion that arises as a result of pneumonia, lung abscess, or bronchiectasis (9).

In a few cases of perigastric node metastases, gastric metastases were reported around the left gastric artery, splenic artery, and in the splenic hilus (5). Jiang et al. reported on a 8-year-old Chinese child presenting with osteosarcoma with pulmonary metastasis and malignant pleural effusion (10). In the present study, the results of IHC were suggestive of metastatic gastric cancer. Pleural involvement and dyspnea, as observed in our case, can be concluded to be the primary presentations of occult gastric cancer.

Generally, gastric cancer is diagnosed with upper endoscopy. Surgical resection is the treatment of choice for gastric cancer. The current therapeutic approach for this type of cancer consists of a combination of surgery and intensive multi-agent chemotherapy. Some of the recognized prognostic factors affecting the overall survival rate of gastric cancer include the tumor position and size, metastasis, surgical possibility, and degree of tumor necrosis after neoadjuvant chemotherapy (10).

The implementation of more thorough examinations and use of other modalities, such as endoscopic ultrasound, might have resulted in a successful diagnosis. Nevertheless, in our case, the specialists suggested not to perform chemotherapy due to the general condition of the patient.

Conclusion

We reported a case of pleural involvement and dyspnea as the primary presentations of occult gastric cancer in a woman. For patients with such distinct clinical presentations, it would be suitable to study gastric cancer as one of the probable primary sites.

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