

It is not always pneumonia, so what would it be?

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Abstract

Adenocarcinoma is the most common lung cancer, which is the most common lead of death in men and women. We are here presenting a case of elderly Asian woman with no risk factors who had been treated for months for pneumonia and when presented to us, her chest x rays showed multiple opacities and no definite masses. Upon thoracentesis, the results showed adenocarcinoma type IV.

Keywords

Adenocarcinoma; lung cancer; death; pneumonia; X rays

Introduction

Lung cancer is the most common cause of death all over the world in both men and women. Cough, hemoptysis, chest pain are not always symptoms of pneumonia but might be also symptoms of lung cancer. Depending only on clinical evaluation or imaging is not the correct way, but using both is the best way to detect those patients early.

Case Report

A 67 years old woman with a past medical history of asthma and hypertension, non-smoker presented with shortness of breath for a couple of days associated with dizziness, nothing helped these symptoms. The patient reported that she had been treated for this condition as pneumonia for a couple of months. On examination, coarse crackles were heard especially on the right chest side, oxygen saturation was 88%, a chest x-ray showed cardiomegaly with interstitial bilateral infiltrates and right pleural effusion (Figure 1). CT angiography showed no pulmonary embolism, extensive diffuse interstitial thickening, peripheral opacities throughout both lungs, with moderate bilateral pleural and pericardial effusions, and mediastinal hilar lymphadenopathy (Figure 2,3). The patient started on empirical intravenous vancomycin and zosyn to cover possible pneumonia. The patient was admitted to ICU for the intensity of care. The Patient SOB

was worsened and started on BIPAP and her oxygen saturation was improving. The pulmonologist was consulted, and a therapeutic and diagnostic thoracentesis, US-guided, was done. 800 cc of serosanguinous fluid was drained. Antibiotics were deescalated to meropenem vancomycin and doxycycline to cover any atypical bacterial infection. Quantitative gold QuantiFERON was negative. The patient was tried to be weaned off BiPAP to high flow oxygen but was fluctuating. Pleural fluid cytology was positive for metastatic adenocarcinoma and based on staining it is +CK-7, TTF-1, Napsin A, but the functional performance was poor. The patient pulmonary condition was worsening. The patient and family choose to go to hospice.



Figure 1: Chest x rays showing ground-glass appearance

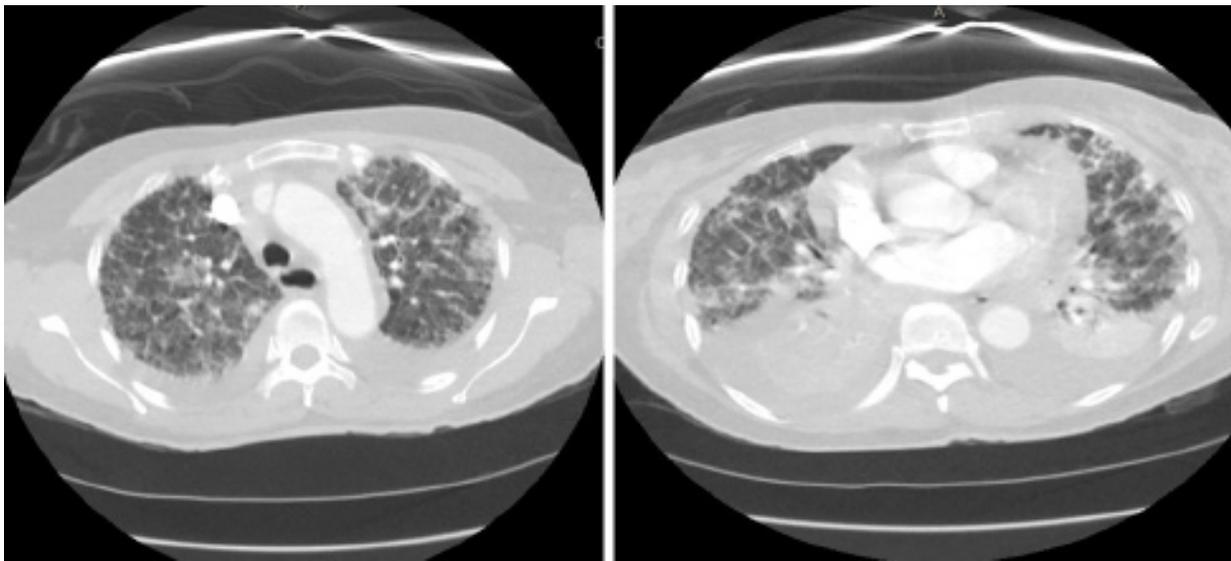


Figure 2 & 3: CT chest showing bilateral pleural effusion, scattered opacities through the lung fields.

Discussion

Lung cancer is considered the most common cancer according to WHO not only in the USA but worldwide [1,2]. Also, adenocarcinoma is considered the most common type of lung cancer [3]. Interestingly, while the term “Bronchogenic carcinoma” is not used anymore, there are some changes concerning the classifications of lung cancer; a new subset of sub-classifications using a new term “lepidic” has been started to be in use. “Lepidic” describes a non-invasive part of the invasive adenocarcinoma along the alveolar wall. Travis et al. have reported that the new classification of adenocarcinoma is as follows: [4].

#Adenocarcinoma in situ(AIS): Unifocal noninvasive lung adenocarcinoma up to 3 cm in diameter.

#Lepidic Predominant Adenocarcinoma (LPA): Larger or multifocal, non-mucinous, noninvasive adenocarcinoma

#Mucinous adenocarcinoma.

#Unifocal or multifocal, mucinous, noninvasive adenocarcinoma

Our patient has been misdiagnosed with pneumonia for months before we discover it is a malignancy, as pneumonia has overlapping symptoms with cancer as Chute et al. have documented [5,6].

Diagnosis process would start once clinical suspicion arises, as most patients with symptoms have already advanced disease [7], imaging followed by biopsy is a cornerstone of the diagnosis. The presence of hilar lymphadenopathy or pleural effusion should raise the suspicion for lung cancer, also unresolved pneumonia, should raise a red flag for investigating lung cancer diagnosis [8-10].

Chest X-ray in our case showed pleural effusion and features of multiple nodularity which was confusing with features of fluid overload or pneumonia, but since the condition has been worsening and was treated over months before presenting to us for pneumonia without resolving, a high suspicion for malignancy raised.

Nodule size is related to the probability of malignancy. The larger the nodules, higher will be the malignancy probability [11,12].

Since our patient has considerable right side pleural effusion, thoracentesis was done for diagnostic and therapeutic purposes with drainage of 800 cc of serosanguinous fluid. Pleural fluid was sent for analysis and the results confirmed exudative pattern with proof of metastatic adenocarcinoma.

To differentiate between transudate and exudate, Light et al. have used The Light's Criteria Rule as a traditional method of differentiation that measures serum and pleural fluid protein and LDH [13].

Piras et al. also have used the measurement of adenosine deaminase (ADA) to distinguish between malignant and tuberculous pleurisy, but initial cytology and smear and culture for tuberculosis are negative [14,15]. The level of ADA is typically greater than 35 to 50 U/L in tuberculous pleural effusions [15,16] and less than 40 U/L in 94 percent of malignant pleural effusions [17].

Enough material for cell block after thoracentesis is recommended as it has higher sensitivity [18]. In general, it is recommended that volumes of thoracentesis should be at least 50 to 60 mL for cell block. In our case, we drain 800 cc.

If the biopsy or sampling is positive for either EGFR or ALK mutations, that would make it more responsive for "targeted therapy" with drugs like tyrosine kinase inhibitors and ALK inhibitors [19].

In our patient, she and her family choose hospice care as her functional status was poor (ECOG 4) and she was not a candidate for chemotherapy.

Conclusion

We recommend high caution when dealing with pulmonary symptoms especially when the patient presents with non-resolving symptoms, as symptoms of simple pneumonia treated with antibiotics might overlap with symptoms of advanced adenocarcinoma. Even among non-smokers, there is a high probability of lung adenocarcinoma. Also, we shouldn't depend on the chest radiograph only but also clinical suspicion and CT chest and if applicable the thoracentesis and biopsy as well.

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