

Treatment-Resistant Bronchopneumonia as a Form of Presentation of Lung Cancer: A Case Report

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Abstract

Lung cancer is the most common neoplasm and one of the deadliest in the world. A clinical case of a 74-year-old patient with a history of being a former smoker is presented. He comes in with a dry cough, fever of 38.5°C and tiredness. The physical examination revealed the respiratory system: slightly decreased vesicular murmur towards the right parailiary region with the presence of crackles at that level. A Chest X-ray is performed, observing an image of inflammatory condensation towards the right iliary region; it is treated as bronchopneumonia worsening the clinical state. A thoracentesis is performed with extraction of pleural fluid for cytohistological study. The cytohistological study diagnosed adenocarcinoma-type non-small cell lung cancer. The patient died before starting cancer treatment. The bronchopneumonic form of lung cancer is not the most frequent, but it is one of the forms that most masks the picture.

Keywords: Cancer; Lung cancer; Lung Adenocarcinoma

Introduction

These days cancer has become a serious health problem for humanity; it is estimated that it will increase rapidly in the coming years, that its incidence will double by 2030 as a result of population growth and aging, and that it may affect all ages, even fetuses [1].

Lung cancer (LC) is the most common neoplasm and one of the most deadly in the world. Despite advances in diagnosis and treatment, its prognosis is still poor, with 5-year survival rates of around 10% [2,3]. He continues to be one of the greatest and most dangerous enemies of humanity. In Cuba in 2019, PC ranked first among the main causes of cancer mortality for both sexes with a rate for males of 61.0 and for females of 39.4 per 100,000 in relation to the corresponding sex [4].

PC is caused by the exposure of the respiratory system to different carcinogens, the most important of which is tobacco smoke, which in turn cause various interrelated genetic changes [3]. The more years a person has smoked, and especially if they have smoked at an early age, is more related to the appearance of cancer, since the dose of carcinogens is cumulative [5].

Lung cancer is classified into two large groups: non-small cell (NSCLC) representing 85% of cases and whose most frequent type currently corresponds to adenocarcinoma), and small cell (SCLC). About 70% of patients with NSCLC are diagnosed with advanced disease at the time of diagnosis [6]. As a class, NSCLCs are relatively insensitive to chemotherapy and radiation therapy compared with SCLC [7].

Different modalities are available for the diagnosis of this disease: radiology, bronchoscopy, bronchial biopsy, sputum cytology, bronchial brushing (CB), bronchial lavage (LB), and fine needle aspiration cytology [2].

In non-small cell lung cancer (NSCLC), results of standard treatment are poor except for the most localized cancers. Surgery is potentially the most curative therapeutic option for this disease. Studies suggest that tumor-related symptoms may be controlled by chemotherapy without adversely affecting overall quality of life [7].

Clinical Case

74-year-old male patient with a history of arterial hypertension and a former smoker. Fisherman by profession, currently retired. He

started smoking at 14 years of age at the rate of 1 pack of cigarette a day for 58 years, he has not smoked for 3 years. Several days ago he started with a dry cough, fever of 38.5°C and tiredness. For this reason, he goes to the guardhouse where he is examined. The physical examination revealed the respiratory system: slightly diminished vesicular murmur towards the right parailiary region with the presence of crackles at that level. Respiratory rate 21 per minute. Rest of the physical examination was normal. They are carried out with supplementary finding:

Complementary made:

Hemoglobin (Hb): 11.3g/dL

Leukogram: $7.3 \times 10^9/L$

Polymorphonuclear: 72%

Lymphocytes: 25%

Eosinophils: 03%

Chest X-ray: image of inflammatory condensation towards the right iliary region is observed (Figure 1).

It is interpreted as right parailiary bronchopneumonia and treatment with intravenous Ceftriaxone 2 grams daily plus Clarithromycin 500 milligrams every 12 hours for 10 days is indicated (Table 1).

After treatment the fever disappeared but the cough worsened, becoming productive with a yellowish expectoration with bloody streaks. Chest x-ray is repeated and a Chest Computed Tomography (CT) is indicated (Figure 2 and Figure 3) and Treatment with Piperazin Tazobactanis started (Table 1).

On the third day after starting the treatment, there was no improvement in the cough, he presented weight loss (3Kg) and anorexia, the CT scan was repeated obtaining the same result. New complements are made:

Direct BAAR sputum: negative.



Figure 1: Chest X-ray 1: Inflammatory condensation towards the right iliary region.



Figure 2: Chest X-ray 3: Worsening of the inflammatory condensation towards the right iliary region.

Sputum culture: Ciprofloxacin-sensitive *Pseudomonas aeruginosa* is isolated

Hemoglobin: decreased to 8.3g/dL

Treatment with Ciprofloxacilis indicated (Table 1). On the 5th day of treatment with Ciprofloxacil, the fever disappeared, but not the cough or weight loss (1Kg more).

A 4th chest X-ray was performed with great radiological deterioration (Figure 4).

A CT scan is repeated which shows worsening and bone metastasis at the level of the spine and right adrerad gland. Pulmonary inflammatory consolidation is associated with atelectasis and small right pleural effusion and mediastinal lymphadenopathy (Figure 5).

It was decided to perform thoracentesis with extraction of pleural fluid for cytohistological study. The cytohistological study diagnosed adenocarcinoma-type non-small cell lung cancer. The patient continued to worsen the clinical picture, dying a week after the diagnosis was made.

Discussion and Conclusion

In developed countries, the median age of presentation of lung cancer is 69 years in men and 67 in women; more than 50% of cases are diagnosed over 65 years [1]. In the case presented above, the patient was 74 years old. This patient also had a high risk factor for suffering from the disease since he was a former smoker who maintained the habit for 58 years, and it has been shown that the risk of developing neoplasia lung is 20 to 50 times higher in smokers than in non-smokers [7].

More than 90% of patients are symptomatic at the time of diagnosis. Most present more than one symptom and the most frequent are those related to the primary thoracic tumor [8] (persistent cough, chest pain, hemoptysis, dyspnea, rhonchi and wheezing, fatigue and



Figure 3: CT 1: Inflammatory consolidation in the middle lobe and lower lobe of the right lung.



Figure 4: Chest X-ray 4: Worsening of the inflammatory condensation towards the right iliac region.

dysphonia) [6] and the combined with the symptoms of metastasis given by headache, hemiplegia and bone pain [8]. However, in this case the symptoms found were persistent dry cough first and then productive hemoptoic, accompanied by crackles in the right parailiary region and fever which was compatible with bronchopneumonia, which did not resolve with treatment. He never presented chest pain, dyspnea was very scarce, he did not present hoarseness or wheezing on auscultation, and he also did not present the symptoms of metastasis, despite finding bone, lymph node and adrenal metastases at the end of the evolution.

Studies carried out in Cuba demonstrated that the highest frequency of lung tumors occurs in the upper lobe of the right lung and the predominant cytological diagnosis is of non-small cells of the histological variety of adenocarcinoma [1,3]. In the case presented, the lesion corresponded to a non-small cell tumor of the adenocarcinoma variety, which was found in the right lung but, unlike regularity, in this case it was not in the upper lobe but in the middle and lower lobe, this rare.

Although different modalities are available for the diagnosis of lung cancer, such as radiology, bronchoscopy, bronchial biopsy, sputum cytology, CB, LB and fine needle aspiration cytology [2]. In the case studied, the radiological methods were not conclusive and the diagnosis was made by means of the cytohistological study of the pleural fluid. Investigations carried out by various authors, which were documented in a study carried out by Pérez Guerra LE, *et al.* in the province of Santa Clara, Cuba [1] showed that the

Table 1: Summary of Treatment used (Stay 21 days).

Day of hospital stay	Medicine	Presentation	Dose	Dose Administration route	Treatment days
1	Ceftriaxone	Bulb 1gr	2gr daily	Intravenous	10 days
1	Clarithromycin	500 milligram tablet	500 mg every 12 hours	Oral	10 days
10	Piperacillin Tazobactam	Bulb 1gr piperacillin/250mg tazobactam	4.5 gr every 6 hours	Slow intravenous infusion	3 days
14	Ciprofloxacin	200mg/10ml bulb	400mg every 12 hours	Intravenous	7 days

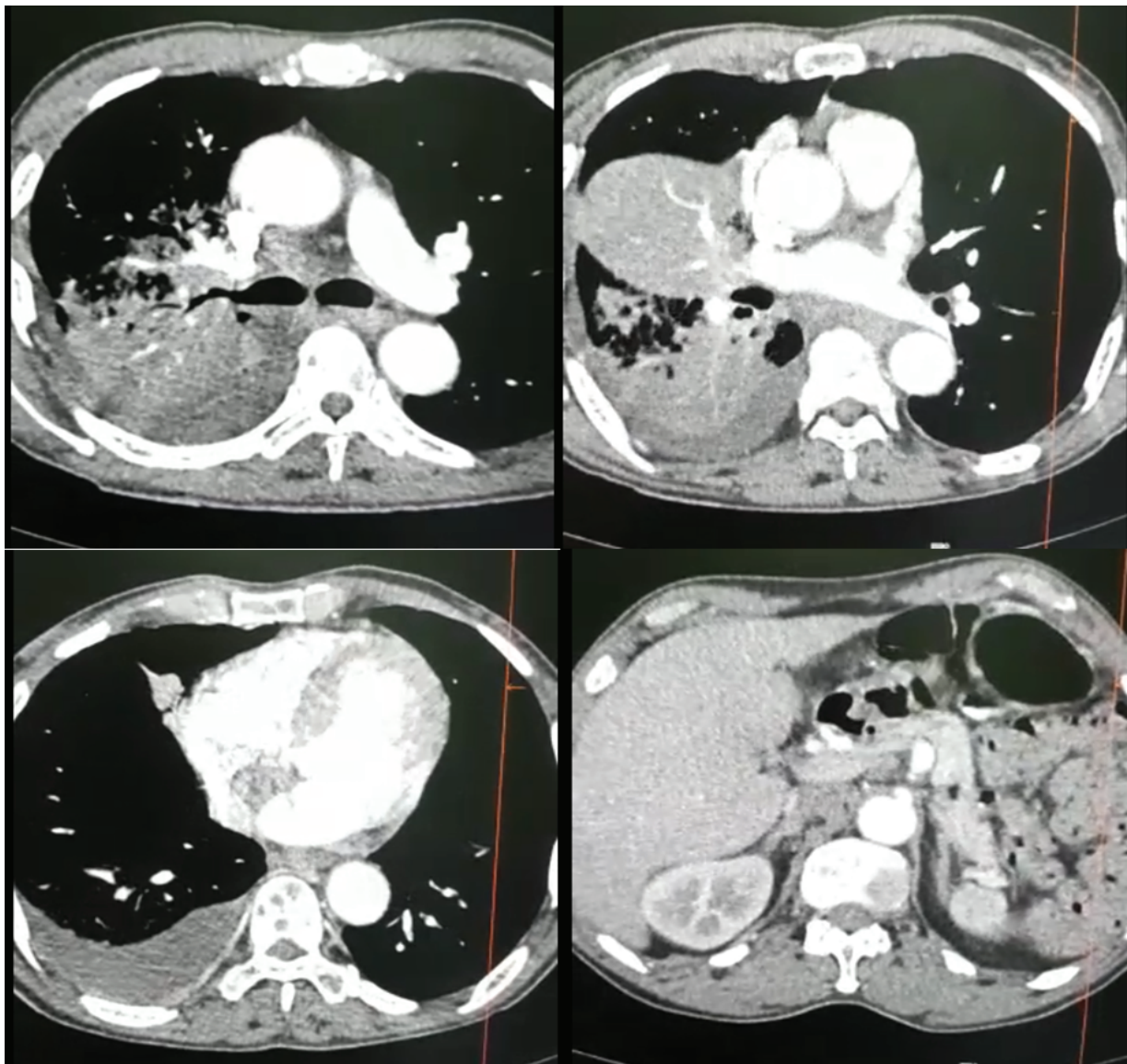


Figure 5: CT 2: Inflammatory consolidation in the middle lobe and lower lobe of the right lung, bone metastasis at the level of the spine and right adrenal gland. Pulmonary inflammatory consolidation is associated with atelectasis and small right pleural effusion and mediastinal lymphadenopathy.

cytological study for the diagnosis of lung cancer is very useful and that the cytological study of pleural fluid is the most positive diagnostic method.

Non-small cell lung cancer, in addition to being the most common subtype in the population, has a poor prognosis (only 16% survive to five years). Adenocarcinoma grows more slowly than squamous cell carcinomas but they tend to metastasize earlier and more extensively [9]. In the case studied, the diagnosis was made late, metastasis was evident at the time of diagnosis and death occurred without giving time to treatment of the disease.

The bronchopneumonic form of lung cancer is not the most frequent, but it is one of the forms that most masks the picture. When faced with an elderly patient with treatment-resistant bronchopneumonia and especially if they have a history of being a smoker, it is important to always rule out the presence of lung cancer.

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