

demonstrated an alveolar opacification in the base of the right lung, and the main laboratory findings were a white blood cell count of 25,490 leukocytes/mm³ and a C protein reactive of 40 mg/dL. During her stay in the ER, quick clinical worsening was observed, with onset of severe respiratory failure and fluid-refractory hypotension, which led to the suspicion of a severe respiratory septic shock. The patient was transferred to the intensive care unit (ICU) for mechanical ventilation and empirical broad spectrum antibiotic therapy (meropenem 1 g t.i.d and linezolid 600 mg b.i.d). Nevertheless, thorax with contrast scan showed progression of the disease, with new dense bibasilar consolidations (Fig. 1A). Blood cultures, serology for atypical bacteria and bronchoalveolar lavage (BAL) with cultures for bacteria and PCR for respiratory viruses and mycobacteria were all negative. Transthoracic echocardiography ruled out heart dysfunction and antinuclear and antineutrophil cytoplasmic antibodies were negative. An open lung biopsy was performed and multiple intra-alveolar fibrin “balls” and inflammatory thickening of alveolar septa along with areas of organizing pneumonia with patchy distribution were observed, findings all consistent with the diagnosis of an acute fibrinous and organizing pneumonia (AFOP) (Fig. 1B). A 5 day treatment of methylprednisolone bolus (250 mg q.o.d) was started, and progressive improvement in respiratory function was noted, thus allowing extubation and oral treatment with corticosteroids (60 mg q.o.d for 2 weeks followed by gradual tapering). Eight weeks after ICU discharge, a complete resolution of respiratory symptoms and pulmonary infiltrates was achieved, so the patient was sent home with complete autonomy in her activities of daily living. Six months after hospital discharge, the patient remains asymptomatic on prednisone 7.5 mg q.o.d, which is being progressively reduced.

Almost 120 cases of AFOP have been published in the medical literature, most of them idiopathic (as our case). It occurs most commonly in males in their fifth and sixth decade of life, and dyspnea is the most common symptom, sometimes accompanied by cough, haemoptysis or fever.² Two clinical forms of the disease may be distinguished: a subacute variety with a gradual onset of the symptoms and mild or absent respiratory insufficiency, and an acute and rapidly progressing variety associated with fulminant respiratory failure and a very poor prognosis.³ The diagnosis of AFOP is challenging. Diffuse bilateral patchy infiltrates is the unspecific radiological pattern most commonly reported and BAL usually is inconclusive.² Therefore, definitive diagnosis requires a lung

biopsy, in which typical intra-alveolar fibrin “balls” and organizing pneumonia with a patchy distribution is observed.¹ The differential diagnosis should always consider diffuse alveolar damage and eosinophilic pneumonia, marked by the presence of hyaline membranes and eosinophils, respectively.⁴ The recommended treatment for AFOP is high doses of methylprednisolone intravenously the first 3–5 days, followed by prednisone 0.5–1 mg/kg per day, which is normally progressively tapered according to clinical evolution.² Immunosuppressive drugs (mycophenolate mofetil, azathioprine and cyclophosphamide mainly) may be added to steroids from the beginning, but their utility seems to be higher in those cases of AFOP with often relapses and associated with autoimmune diseases.²

Our case illustrates that, given the rarity of AFOP and the requirement of a lung biopsy to reach the diagnosis, this entity may be underdiagnosed, and it is advisable to consider it in all those cases of pneumonia with an inappropriate response to anti-infective therapy.

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Cardiac Metastases From A Lung Tumor[☆]



Metástasis cardíacas de una neoplasia pulmonar

To the Editor,

Lung cancer involving the heart is rare. It is associated with a poor prognosis and often not detected until autopsy. Very few cases have been published describing lung cancer with intracardiac metastasis. We report the case of a patient with cardiac metastases at the time of diagnosis.

A 43-year-old man, smoker with an accumulated consumption of 30 pack-years, occasional drinker, with no other clinical history of interest. He presented in the emergency room with a 3-month history of cough, expectoration of mucus, dysphonia, and

weight loss, asthenia and anorexia. Examination was unremarkable, and the patient was in good general condition. Blood tests were performed, revealing platelets 580,000/mm³, hemoglobin 12 g/dl, leukocytes 12,000/mm³ and C-reactive protein 10. Chest radiograph showed a mass in the right upper lobe with generalized cardiomegaly. Electrocardiogram showed sinus tachycardia. In view of these findings, we decided to extend the evaluation, as follows:

- *Computed tomography (CT)*: a mass measuring >5 cm was found, with lobulated borders and spiculated margins in ample contact with the apical segment of the right upper lobe, another mass measuring 2.5 cm in the apical segment in contact with the mediastinal pleura, obstructing segment 3 with distal pneumonitis. Multiple bilateral pulmonary nodules, mediastinal lymphadenopathies measuring >1 cm in the supraclavicular regions on both sides in all mediastinal spaces. Significant pericardial effusion with diffuse pericardial thickening. Significant right and mild left pleural effusion. Hypodense hepatic lesion

[☆] Please cite this article as: Cabrera César E, Fernández Aguirre MC, Hidalgo Sanjuan MV. Metástasis cardíacas de una neoplasia pulmonar. *Arch Bronconeumol.* 2017;53:80–81.

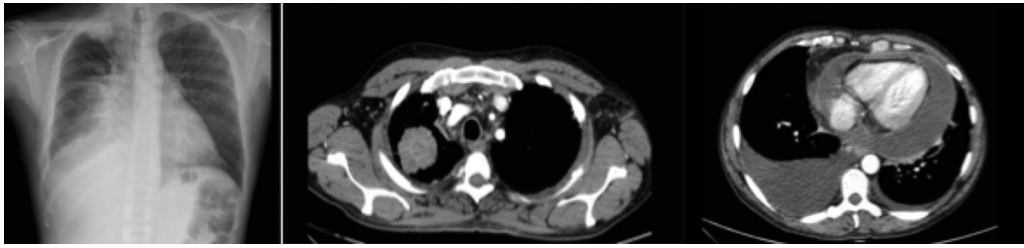


Fig. 1. Chest radiograph with pulmonary mass and generalized cardiomegaly. CT images showing pulmonary mass in right upper lobe and pleuropericardial effusion.

measuring >2 cm in segment IV. Nodular thickening of the left adrenal gland and a lytic bone lesion in the D8 vertebra, suggestive of metastasis. Conclusion: pulmonary masses consistent with synchronous neoplasms. Stage IV (Fig. 1).

- **Echocardiography:** a predominantly posterior, large pericardial effusion was revealed with minimal evidence of hemodynamic involvement. Several mobile multilobulated masses, measuring several centimeters, were observed adhering to the anterior, lateral and posterior areas of the visceral pericardium. An echogenic image measuring around 15 × 9 mm was observed within the inferior aspect of the myocardium, consistent with metastatic implant.

A diagnostic thoracocentesis was performed, the results of which were inconclusive. During the bronchoscopy, the patient had an episode of hypotension, so the test was suspended. Diagnosis was obtained from a CT-guided fine-needle aspiration and biopsy (FNAB) with results consistent with the diagnosis of lung adenocarcinoma. EGFR and ALK mutation cytologies were requested, reported as “mutation absent” and “no translocation”, respectively.

On admission, a pericardiocentesis was proposed to prevent possible cardiac tamponade, but in view of the patient’s hemodynamic instability, we decided to start treatment with corticosteroids, leading to clinical improvement confirmed in subsequent monitoring. The patient was referred to medical oncology to start chemotherapy.

Any malignant tumor can metastasize to the heart. Although primary cardiac tumors are rare, secondary involvement from a primary tumor is not so uncommon, and carries a poor prognosis. Some studies have reported a higher incidence than expected, ranging between 2.3% and 18.3%.¹ Bussanni et al.² performed 18,751 autopsies, including 7289 cancer patients, of whom 9.1% had cardiac involvement. The most common primary tumor is mesothelioma (48%), followed by melanoma (27.8%) and lung adenocarcinoma (21%). Lymph node propagation is considered the most common,³ although hematological dissemination and, to a lesser extent, direct extension have also been described.

Clinical presentation is very variable, depending on the metastatic site, and it is generally asymptomatic, but on occasions it can manifest as dyspnea, cough or chest pain,⁴ or even pericardial tamponade. Management of pericardial effusion depends on the type of underlying primary tumor.⁵ In the case of lung tumors, some guidelines⁵ propose that the best therapeutic option for resolution is the combination of systemic and intrapericardial chemotherapy.

This case demonstrates a rare intracardiac metastatic manifestation of lung cancer, conferring a very poor disease prognosis. Cardiac metastases must be considered in the differential diagnosis of heart disease in a patient with lung cancer.

Acknowledgement

The authors thank the Respiratory Medicine Department of the Hospital Universitario Virgen de la Victoria.

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