

Letter to the Editor

Diagnostic of Nodular Pulmonary Amyloidosis With Electromagnetical Navigation Bronchoscopy (ENB) and Cryobiopsy



Amyloidosis nodular pulmonar: diagnóstico con Navegación Electromagnética Bronquial (NEB) y criobiopsia

Dear Editor,

We have read with interest the Clinical Image recently published by Cuenca S. et al.¹ in the Open Respiratory Archives.

In the same way of the authors, we agree that the lung amyloidosis involvement is relatively uncommon. Amyloidosis is a heterogeneous group of diseases characterized by the deposition of amyloid fibrils in the extracellular matrix of tissues and organs.² Pulmonary amyloidosis is frequently characterized by the AL amyloid subtype and can be located or associated with systemic involvement, presenting in a nodular, diffuse interstitial, or tracheobronchial pattern.³ Nodular pulmonary amyloidosis (nodular amyloidoma) can appear incidentally in a chest radiologic diagnosis, it is often asymptomatic and also does not usually require surgical resection. The main differential diagnosis is lung cancer and the specific histological diagnosis must be established. Histologically, amyloidoma nodules are normally well circumscribed and are composed of homogenous eosinophilic material

with aggregates of lymphocytes and plasma cells within or adjacent to the nodules.

Cuenca S. et al.,¹ present a case of an ex-smoker patient with prostate cancer. The complementary study with Positron Emission Tomography-computed (PET/CT) showed a lung hypermetabolic nodule in the left upper lobe and mediastinal lymph nodes. Bronchoscopy and EBUS were performed without a conclusive result and the final diagnosis was established with surgical biopsy.

We present a case with a nodular pulmonary amyloidosis diagnosed by cryobiopsy with Electromagnetical Navigation Bronchoscopy (ENB).

A 74-year-old woman, ex-smoker with mild and limited haemoptysis was referred to our Interventional Pulmonologist Unit to study the peripheral pulmonary nodule observed in a thoracic computed tomography (CT) scan. Lung cancer was suspected and complementary explorations were indicated. Pulmonary function tests demonstrated a diffusion capacity for carbon monoxide (DLCO) 50% of the predicted. PET/CT revealed a 1.9 mm nodule (SUVmax 4.36) in the lateral subsegment of the middle lobe without mediastinal involvement and no lesions in other organs (Fig. 1b). The patient was discussed in the Tumor Board and it was decided that the first diagnostic approach would be with ENB to minimize the risk of pneumothorax. ENB was performed (Fig. 1b) and transbronchial needle aspiration (TBNA) and biopsies were obtained with 1.1 mm flexible cryoprobe. Rapid On Site Examination (ROSE)

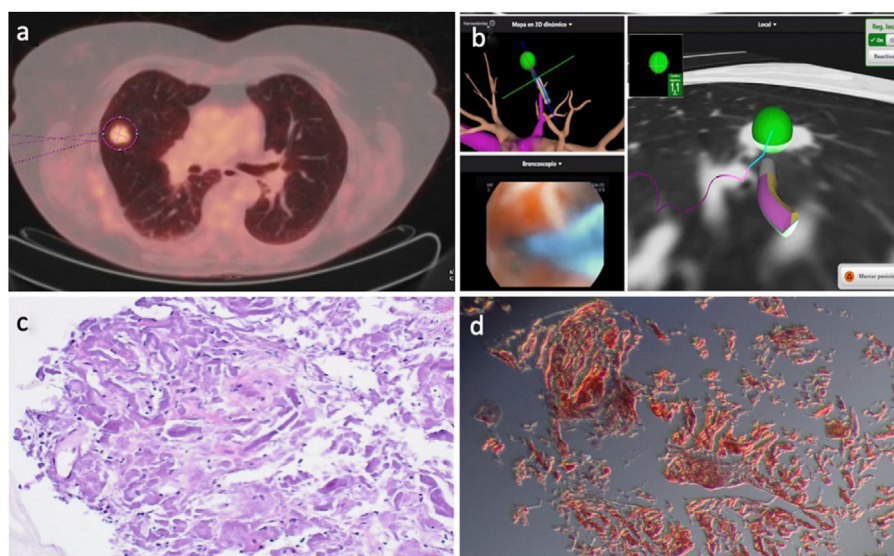


Fig. 1. (a) PET/CT detecting hypermetabolic lung nodule in the lateral subsegment of the middle lobe (1.9 mm, SUVmax 4.36). (b) Lung nodule located with Electromagnetic Navigation Bronchoscopy (ENB). (c) Hematoxylin-eosin stain: Transbronchial cryobiopsy showing alveolated lung parenchyma with nodular deposits of pink amorphous material, predominantly in vascular walls. (d) Congo red stain (20 $\times$) under polarized light. The amorphous material shows apple green birefringence.

observed inflammatory cells in fine needle aspiration (FNA) samples. Final histological examination of the cryobiopsies revealed homogenous eosinophilic amorphous material (Fig. 1c) with red-green birefringence under cross-polarized light with Congo red staining (Fig. 1d) and the diagnosis of amyloidosis was established. The echocardiogram, serum plasma cell profile and protein electrophoresis were normal and the absence of systemic amyloidosis was confirmed. The patient was diagnosed with localized AL amyloid and remains asymptomatic.

The diagnostic of lung peripheral nodules without endobronchial involvement is a challenge. The screening in lung cancer strategies and the access of population to advance CT scan have increased the number of patients with lung peripheral nodules. The diagnostic yield using virtual bronchoscopy (VB), radial endobronchial ultrasound (r-EBUS), and ultrathin bronchoscopes remains suboptimal.⁴ Transthoracic needle aspiration (TTNA) is a technique with good diagnostic yield but with high incidence of pneumothorax. In the last decade, Electromagnetic Navigation Bronchoscopy (ENB) has become in minimally invasive technique with optimal diagnostic yield to perform biopsies with vision in real time.⁵

In conclusion, the use of the novel ENB with different tools is a minimally invasive method that allows to improve the diagnosis strategies of peripheral lung nodules and avoid or plan the surgical approach.

Informed consent

Informed consent was obtained from the patient for publication of the clinical data and images present in this manuscript.

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Authors' contributions

Virginia Pajares, Albert Rafecas-Codern and Pere Serra-Mitjà have collected the clinical information and they have written the manuscript. Irma Campazas has performed pathological diagnosis and has described pathological findings.

Conflict of interest

The authors declare no conflict of interest directly or indirectly related to the contents of the manuscript.

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