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Missed endobronchial carcinoid tumor presenting as recurrent pneumonia

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Abstract

Overlooked lung tumors on imaging studies are not uncommon. It has become the most frequent cause of missed diagnosis and a major cause of medical litigation involving radiologists. Central endobronchial lesions have been shown to be the most often missed lesions at CT examination. We report a case of a patient who had recurrent pneumonia for past 5 years in which an endobronchial mass was missed in the previous imaging studies. Patient underwent lobectomy and histology revealed a typical carcinoid tumor.

Keywords: Overlooked lung tumors; Endobronchial mass; Recurrent pneumonia; Carcinoid tumor

1. Introduction

Overlooked lung tumors on imaging studies are not uncommon. Recently, it has become the most frequent cause of missed diagnosis. This error in diagnostic judgment is also a major cause of medical litigation involving radiologists. This is a case report of a patient who had recurrent pneumonia for past 5 years in which an endobronchial carcinoid tumor was missed in the previous imaging investigations.

2. Case report

A 58-year-old housewife who is a non-smoker presented with a 5-year history of recurrent episodes of non-productive cough and fever. There was no associated loss of appetite or weight. During this time, she had multiple hospital admissions due to both bacterial and fungal pneumonia. She had repeated chest radiographs and computed tomography (CT) scans of the chest done during the course of her illness. She also has a background history of hypertension for 10 years as well as bronchial asthma for 6 years.

In the latest episode of pneumonia, she presented with cough and fever for 3 days. Clinical examination of the respiratory system revealed deviation of the trachea to the left side. There was reduced air entry and vocal resonance in the left lung with associated crepitus in the left lung base. Review of other systems was normal. Blood investigations were within normal limits. Chest radiograph showed tracheal and mediastinal shift to the left with generalized collapse consolidation of the left lung with air bronchogram (Fig. 1). Review of the series of chest radiographs taken during the admission a month ago also revealed persistent consolidation in the left lung. A CT scan of the thorax performed 10 days after admission showed worsening of the left lung volume loss. Traction bronchiectasis was noted with associated mediastinal shift to the left and compensatory hyperinflation of the right lung. There was also marked pleural thickening in the left lung apex. Inspection of the main bronchi revealed a well defined, ovoid endobronchial mass measuring 2.0 cm × 1.5 cm in the left main bronchus. Specks of calcifications were noted at the periphery of this mass (Figs. 2 and 3). No intrapulmonary nodules or significant mediastinal lymphadenopathy was present. Review of a previous CT scan of the thorax done more than a year before showed the left endobronchial lesion was already present and was not described in the initial report. A bronchoscopy was performed and confirmed the presence of a large pedunculated polypoidal lesion measuring more than 2 cm in the left main bronchus (Fig. 4). The patient was then referred to a cardio-thoracic center. Lobectomy was performed

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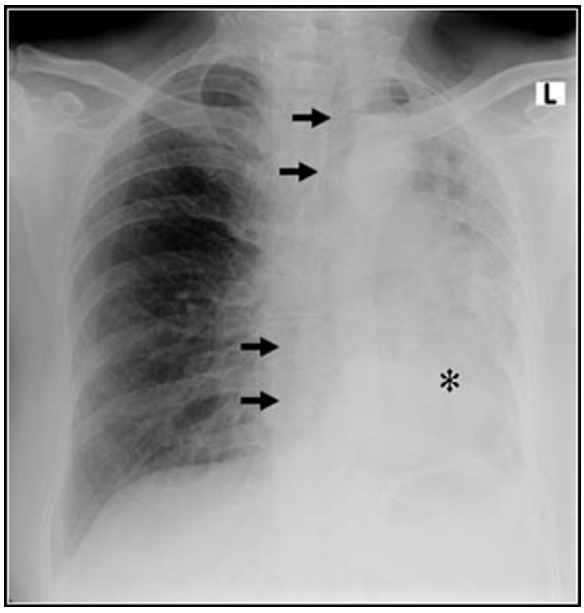

Fig. 1. Erect chest radiograph shows reduced left lung volume with tracheal and mediastinal shift to the left side (arrows). There is generalized inhomogenous opacification of the left lung with air bronchogram consistent with collapse consolidation (*). There is crowding of the ribs on left side with elevation of the left hemi-diaphragm.

and histological findings of the mass were typical of carcinoid tumor.

3. Discussion

Failure to detect, identify, or describe an abnormality on a chest radiograph that is subsequently shown to be a lung tumor is an important diagnostic problem. It is also a major cause of medicolegal action involving radiologists where in nearly one-half of the lawsuits, the plaintiff's argument is based on a "failure to diagnose" [1]. The sources of error in the radiographic diagnosis of lung carcinoma include image quality, detection of the lesion, recognition of the lesion, and communication of information to the referring physician [1].

This error in diagnostic judgment is not uncommon and the reported frequency of these missed diagnoses varies. In a study of 27 patients with potentially resectable bronchogenic carcinomas revealed retrospectively on serial chest radiographs showed that most cancers missed were in an upper lobe (81%), especially the right upper lobe (56%) [2]. Other unanticipated findings of this study were (a) women outnumbered men by 2:1; (b) the mean diameter of the missed lesions was not particularly small ($1.6\,\text{cm} \pm 0.8$); (c) the margin of the missed lesion was at least

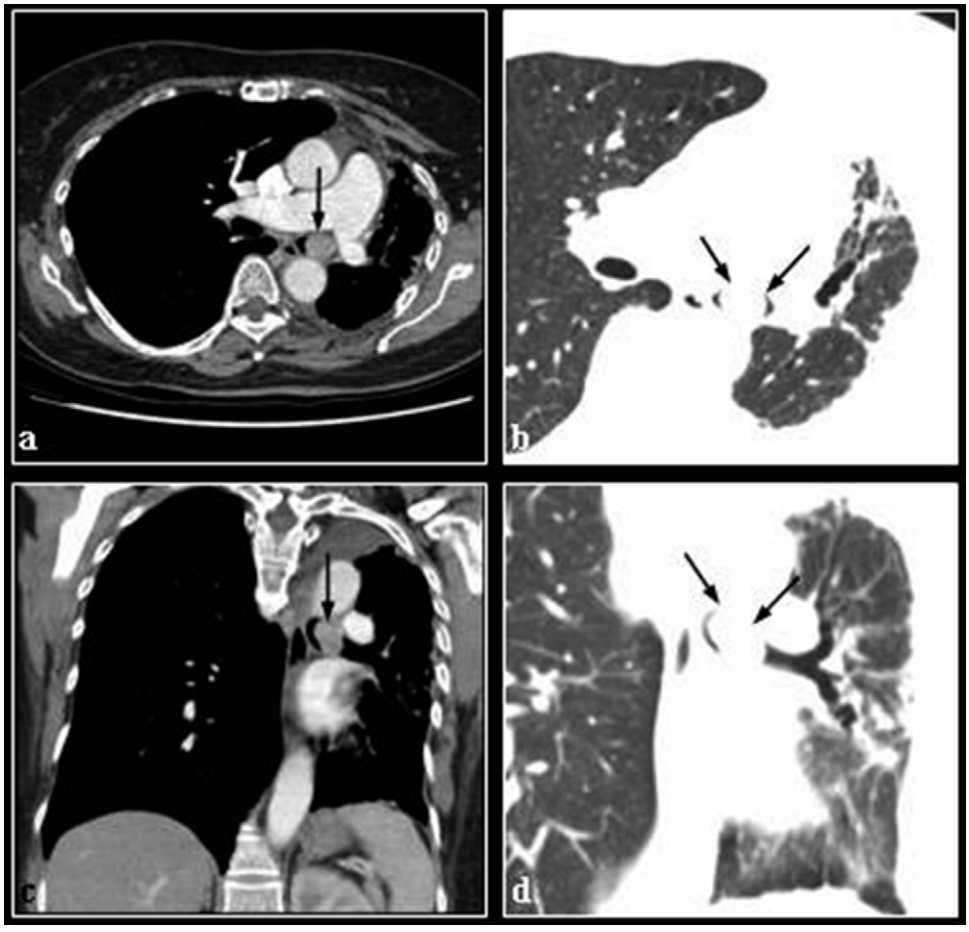

Fig. 2. Contrasted CT scan of the thorax in axial views in (a) mediastinal and (b) lung windows and coronal views in (c) mediastinal and (d) lung windows. There is significant volume loss of the left lung with traction bronchiectasis and associated mediastinal shift to the left as well as compensatory hyperinflation of the right lung. There is a well defined, ovoid endobronchial mass with calcifications measuring 2.0 cm × 1.5 cm in the left main bronchus (arrows).