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Case report

# Pulmonary hamartoma mimicking a mediastinal cyst-like lesion in a heavy smoker

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ABSTRACT

Pulmonary hamartoma (PH) is the most common benign tumor of the lung, typically presenting as a peripheral solitary nodule with round shape and smooth margins. The main computed tomography (CT) features that allow a confident diagnosis of PH are intranodular fat and popcorn-like calcifications. However, the presence of these features within PHs is variable. Thus, a reliable diagnosis of PH cannot be formulated in approximately 30% of cases. Furthermore, PHs may occasionally show atypical CT features.

The present article reports the case of a centrally located PH with an extremely rare and previously unreported CT presentation consisting of fluid attenuation, rim enhancement and thick enhancing septa that mimicked a mediastinal cyst-like lesion.

## 1. Introduction

Pulmonary hamartomas (PHs) constitute 6–8% of solitary lung nodules and account for 75% of all benign lesions [1,2]. PHs occur mostly as peripheral solitary nodules and are incidentally detected on routine radiological examinations, such as radiography and computed tomography (CT) [2,3]. CT is the diagnostic tool of choice in the study of the internal characteristics of pulmonary nodules. The main CT features suggestive of PH are intranodular fat and popcorn-like calcifications [3].

However, the presence of these features within PHs is variable and their frequency increases with the tumor's size [4]. Thus, a reliable diagnosis of PH cannot be formulated in approximately 30% of cases [2,3]. Furthermore, PHs may occasionally show atypical CT features [5].

The present article reports the case of a centrally located PH with an extremely rare and previously unreported CT presentation consisting of fluid attenuation, rim enhancement and thick enhancing septa that mimicked a mediastinal cyst-like lesion. The radiologic-pathologic correlation of this unusual presentation was also described.

## 2. Case report

A 59-year-old Caucasian woman with a 40 pack/year smoking history was referred to our radiology department to undergo an ultra-low-dose chest CT scan as part of the protocol of an interventional clinical study started in December 2017. This study, titled “Ultra-low-dose chest CT for lung nodules detection in high risk subjects”, was approved by our local ethics committee as a prospective analysis (NP 2851). Therefore, informed consent for the use of personal data of the patient for scientific purpose was obtained.

The patient, with stage IA chronic obstructive pulmonary disease, reported occasional nonproductive cough and initial shortness of breath on exertion.

The ultra-low-dose CT scan revealed a round and smoothly marginated low-attenuation nodule (maximum diameter, 25 mm) located anterior to the left hilum in the phrenic nerve region (Fig. 1). This nodule created an obtuse angle with the lung; therefore, it was considered a mediastinal lesion. Based on the ultra-low-dose CT findings, our provisional diagnosis included bronchogenic cyst and tumors with cystic degeneration such as schwannoma and lymphadenopathy. Thus, a dynamic contrast-enhanced chest CT was performed one week later. The dynamic contrast-enhanced CT scan

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**Abbreviations list**

| | |
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| CT | computed tomography |
| FDG | fluorodeoxyglucose |
| PET | positron emission tomography |
| PH | pulmonary hamartoma |

revealed that the nodule had predominant fluid attenuation (approximately 10 Hounsfield Units) with rim enhancement and thick hypervascularized septa and was closely abutted to the superior pulmonary vein (Fig. 2). Based on the site (phrenic region), shape (round), margins (smooth) and internal characteristics (fluid attenuation, rim enhancement and thick enhancing septa) of the nodule, our provisional diagnosis was schwannoma with cystic degeneration originating from the phrenic nerve. However, no sign of diaphragmatic eventration was observed.

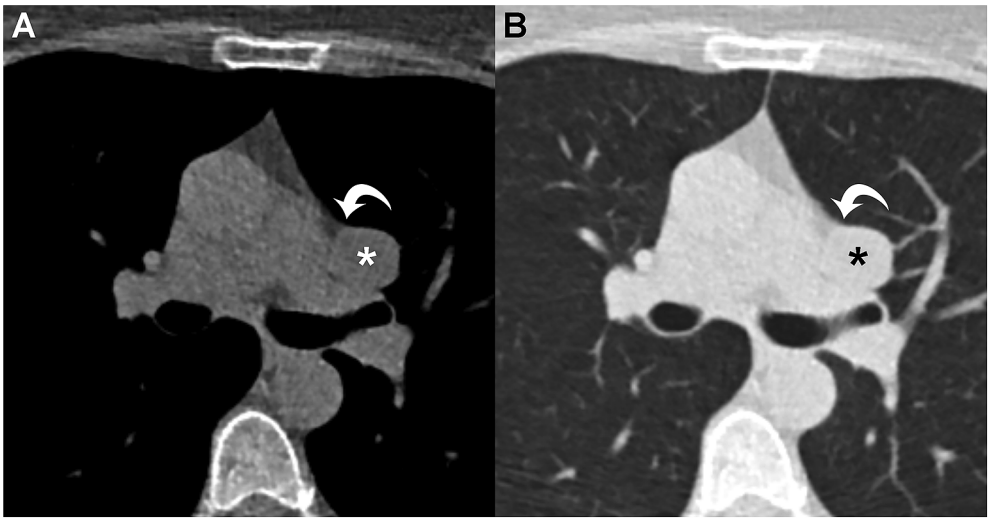


**Fig. 1.** Axial ultra-low-dose CT images with mediastinal window (A) and lung window (B) reveal a round and smoothly marginated low-attenuation nodule located anterior to the left hilum (asterisks). The obtuse angle formed between the nodule and the adjacent lung parenchyma (arrows) suggests a mediastinal lesion.

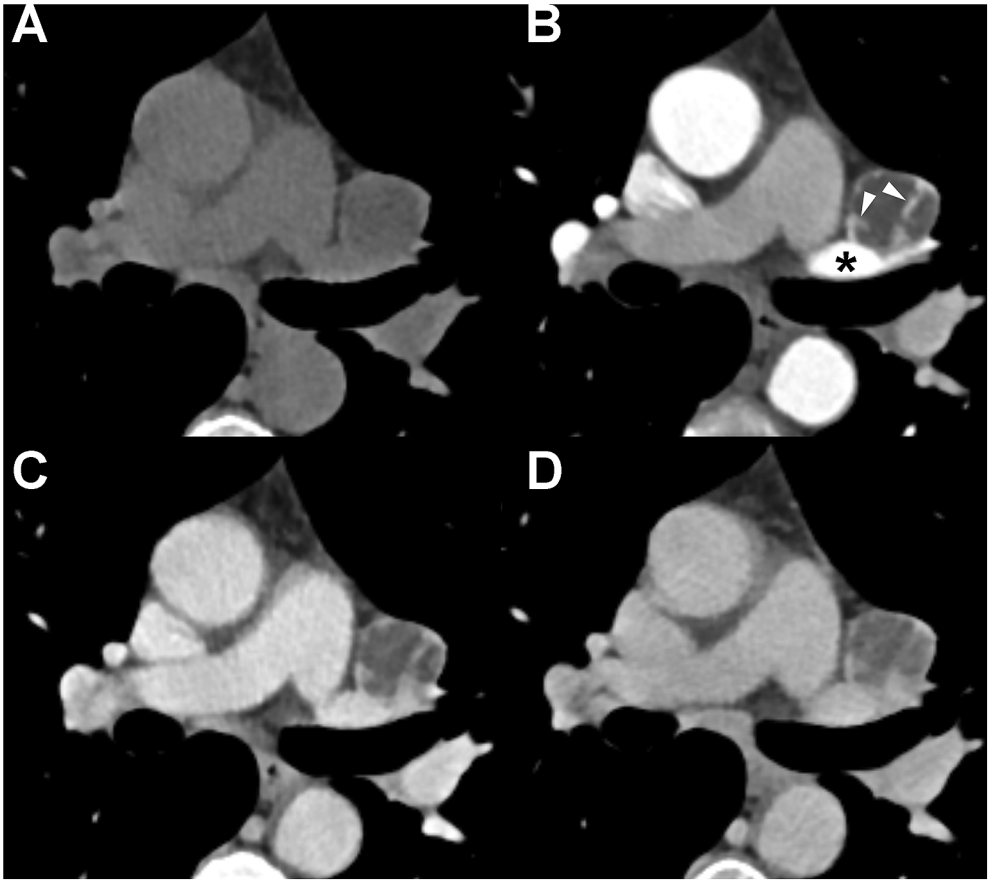


**Fig. 2.** Axial dynamic contrast-enhanced CT images obtained before contrast medium injection (A), at 30 seconds (B), 1 minute (C) and 3 minutes (D) after contrast medium injection show that the nodule has predominant fluid attenuation with rim enhancement and thick hypervascularized septa (arrowheads in B). Note that the lesion is closely abutted to the superior pulmonary vein (asterisk in B).