

# Pulmonary Mass in a Chronic Smoker

David Barrese DO, Daniel Parenti DO FCCP, FACOI, Michael Venditto DO, FCCP, FACOI

Department of Internal Medicine, Division of Pulmonology and Critical Care Medicine, Philadelphia College of Osteopathic Medicine

## Introduction

Pulmonary nodules are round lesions less than 3cm in diameter that are completely surrounded by pulmonary parenchyma. They are a common finding on chest imaging, reported as often as 150,000 times annually. Nodules are referred to as masses once their diameter exceeds 3cm, and when this occurs are much more likely to be malignant.

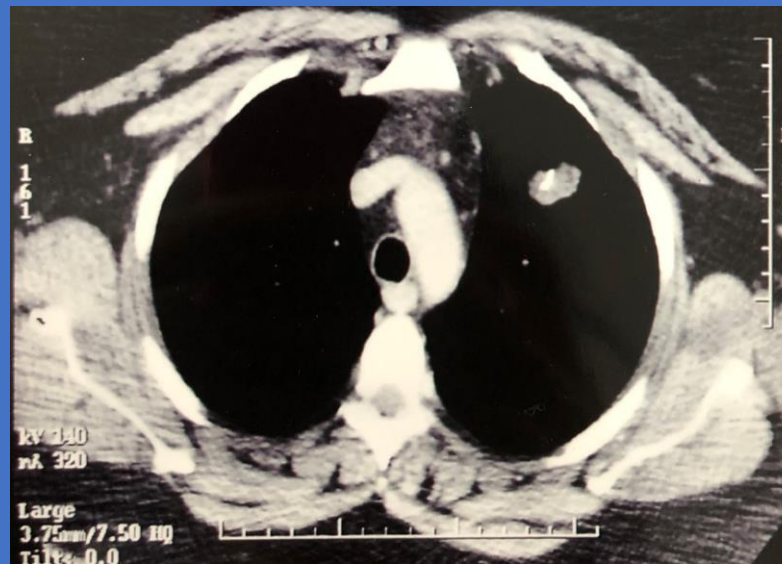
## Case Report

42 year old female current smoker with a past medical history significant for Chronic Obstructive Pulmonary Disease presents with persistent and worsening cough.

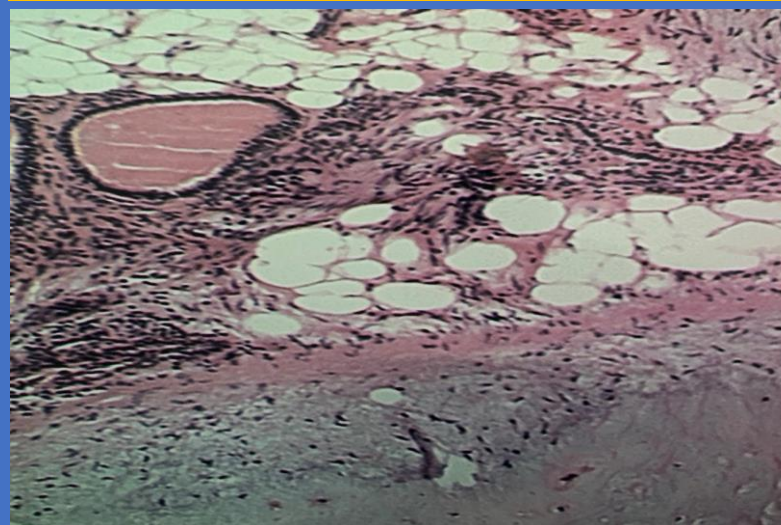
Patient was evaluated initially with a standard 2 view chest x-ray (CXR), demonstrating emphysematous lungs with a mass within the left upper lobe. This was then further evaluated with computed tomography (CT) of the chest which identified a lobulated well-defined tumor, approximately 1.25 x 3.33 centimeters in size, consisting of multiple densities, including an area of curvilinear calcification. Due to the size of the mass and smoking history, the patient subsequently underwent thoracotomy and excisional biopsy of the lesion.

The pathologic examination of the specimen demonstrated a mixture of mature cell lineages without preservation of the lung architecture. These cell lineages contained smooth muscle cells, numerous adipocytes, and chondrocytes with a surrounding network of hyaline cartilage, consistent with a pulmonary hamartoma. The patient tolerated the procedure well and was safely discharged home in a few days.

## Chest CT



## Pathology



## Discussion

Pulmonary nodules and masses are best evaluated with chest CT. Characteristics associated with malignancy include larger size, rapid growth, and spiculated borders. Whereas smooth borders, smaller size and calcifications (except when eccentric or stippled) are more typical of benign lesions. Benign nodules are usually due to infectious granulomas, but can also be noninfectious or neoplastic. Of the benign lung neoplasms, the most common are hamartomas, which are almost always solitary lesions, generally fat-containing and calcified (centrally or popcorn like) and have clear rounded or lobulated borders on CT. Hamartomas are most often centrally located (90%) but can also be endobronchial. Very rarely pulmonary hamartomas may be multiple, or when associated with extra-adrenal paragangliomas and gastrointestinal stromal tumors as part of Carney Triad, an indolent and sporadic condition more common in young women.

## Conclusion

Hamartomas are the most common benign lung neoplasms and can often be identified by their characteristic appearance and location on CT. Hamartomas can be monitored for growth over time, however they can also safely and successfully be removed in cases where there is concern.

## References

1. Leiter Herr'an F, Restrepo CS, Alvarez G'omez DI, Suby-Long T, Ocazonez D, Vargas D. Hamartomas from head to toe: an imaging overview. *Br J Radiol* 2017; 90: 20160607
2. Ost, D., Fein, A. M., & Feinsilver, S. H. (2003). The Solitary Pulmonary Nodule. *New England Journal of Medicine*, 348(25), 35-42.
3. Guo , W., Zhao, Y.-P., Jiang, Y.-G., Wang, R.-W., & Ma, Z. (2008). Surgical treatment and outcome of pulmonary hamartoma: a retrospective study of 20-year experience. *Journal of Experimental and Clinical Cancer Research*, 27(8), 1-5.