

Pulmonary Hamartoma

A 45-year-old asymptomatic male patient underwent a chest X-ray for screening purposes (Fig. 1). A computed tomography (CT) scan was done for better characterisation of the lesion (Fig. 2, with inset showing zoomed view of the lesion). Fine needle aspiration cytology (FNAC) confirmed the diagnosis.

What is your diagnosis?

- a) Carcinoid
- b) Bronchogenic carcinoma
- c) Metastases
- d) Pulmonary hamartoma
- e) Hydatid cyst

Answer

Chest X-ray (Fig. 1) shows a well-defined, solitary pulmonary nodule in the right perihilar location with a characteristic “popcorn” calcification. CT (Fig. 2) confirmed the presence of a solitary nodule with chunky calcification with hypodense areas of fat attenuation within it, which are better delineated on the zoomed inset image. FNAC showed disorganised mesenchymal elements with the presence of fat, muscle and calcium and a diagnosis of pulmonary hamartoma was established.

Discussion

Pulmonary hamartoma is the most common benign tumour of the lung and the third most common cause of solitary pulmonary nodule, constituting 5% to 8% of all solitary pulmonary nodules.¹ They are found more commonly in men with a preponderance of 2:1 to 3:1 and the peak incidence is in the sixth or seventh decade of life.² They are usually asymptomatic and discovered incidentally, but rarely may be associated with haemoptysis and cough.¹ They are usually solitary, <4 cm in size and 90% of the pulmonary hamartomas are peripheral with only occasional lesions being central or endobronchial in location.² The characteristic radiograph appearance of a hamartoma is a solitary, well-defined, smooth or slightly lobulated, peripheral pulmonary nodule with the presence of popcorn-like calcification (seen in 10% to 15% of patients on X-ray) or fat being the diagnostic feature.¹ On CT, the fat and calcification can be better appreciated, with calcification seen in 15% to 30% of patients, fat identified in 34% to 50% of patients and both seen in 19% of hamartomas.³ The importance lies in differentiating the atypical hamartomas including the central lesions with bronchial obstruction, those not containing fat or calcium on CT and lesions with cavitation, from other differentials of solitary pulmonary nodule-like bronchogenic carcinoma and carcinoid. Fine needle aspiration usually establishes the diagnosis and averts the need for a diagnostic



Fig. 1. Chest X-ray shows a partly calcified solitary pulmonary nodule in the right perihilar location.

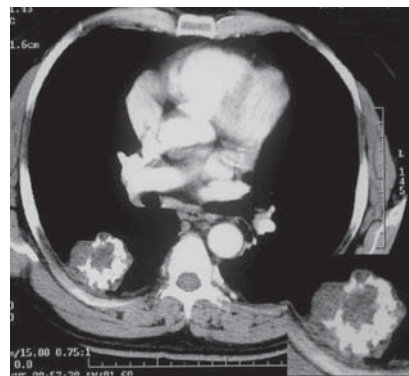


Fig. 2. CT scan reveals a lobulated lesion with “popcorn calcification” and areas of fat attenuation within it (better seen on zoomed inset image).

thoracotomy. On cytology, pulmonary hamartomas typically contain a mixture of mesenchymal elements ranging from fibromyxoid or chondroid connective tissue to mature cartilage and benign bronchial epithelial cells arranged in a disorganised fashion in a non-necrotic background.¹ Fat, muscle, bone and bone marrow may also be seen. Malignant transformation is extremely rare. Multiple pulmonary hamartomas may be seen in Carney’s triad which includes pulmonary chordomas, gastric epithelioid leiomyosarcomas and functioning extra-adrenal paraganglioma. Most of the pulmonary hamartomas show slow growth and require only conservative management, with surgical treatment including enucleation or wedge resection being reserved for rapidly growing masses or symptomatic patients.³

REFERENCES

1. Thomas JW, Staerckel GA, Whitman GJ. Pulmonary hamartoma. *AJR Am J Roentgenol* 1999;172:1643.
2. Gjevre JA, Myers JL, Prakash UBS. Pulmonary hamartomas. *Mayo Clin Proc* 1996;71:14-20.
3. Siegelman SS, Khouri NF, Scott WW Jr, Leo FP, Hamperum, Fishman EK, et al. Pulmonary hamartoma: CT findings. *Radiology* 1986;160:313-7.

Kushaljit Singh Sodhi,¹MD, Vivek Virmani,¹MD, DipNB, SK Jindal,²MD, Niranjan Khandelwal,¹MD, DipNB, FICR

¹ Department of Radiodiagnosis Postgraduate Institute of Medical Education and Research, Chandigarh, India

² Department of Pulmonary Medicine, Postgraduate Institute of Medical Education and Research, Chandigarh, India

Address for Correspondence: Dr Kushaljit Singh Sodhi, Department of Radiodiagnosis, PGIMER, Chandigarh, 160012, India.

Email: sodhiks@gmail.com