^{18}F-Labeled Fluoro-2-Deoxyglucose Positron Emission Tomography and Computed Tomography in a Large Pulmonary Sclerosing Pneumocytoma with Contralateral Lung Metastasis

Abstract

Pulmonary sclerosing pneumocytoma is an exceedingly rare neoplasm of the lung. These tumors are usually slow growing with a benign disease course but can easily be mistaken for carcinoid tumors or adenocarcinoma in cytology or histopathology specimens. Rare occurrences of metastases have been reported in the literature making ^{18}F-labeled fluoro-2-deoxyglucose positron emission tomography and computed tomography useful for the evaluation of these tumors.

Keywords: *Fluoro-2-deoxyglucose positron emission tomography and computed tomography, pulmonary sclerosing hemangioma, pulmonary sclerosing pneumocytoma*

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A 22-year-old woman presented with dull aching chest pain on the right side for 3 years and dry cough for 6-month duration. Initial chest radiographs posteroanterior view showed a rounded homogenous opacity occupying the right middle and lower zone and a smaller rounded homogeneous opacity on the left side [Figure 1a, white arrows]. She was lost to follow-up and presented a year later with the same complaints. A repeat chest radiograph was obtained, which showed the masses to be of similar extent [Figure 1b, white arrows]. Ultrasound-guided biopsy of the mass done initially was suggestive of adenocarcinoma. Hence, to evaluate the disease extent, ^{18}F-labeled fluoro-2-deoxyglucose positron emission tomography and computed tomography (^{18}F-FDG PET/CT) were performed. The maximum intensity projection image showed an area of inhomogeneous FDG uptake in the right hemithorax and a faint focal FDG uptake in the left hemithorax [Figure 1c, black arrows]. The transaxial and coronal CT and fused PET/CT images showed a large FDG avid well-defined heterogeneously enhancing mass measuring approximately 14.0 cm × 12.4 cm (SUVmax - 7.1) involving all three lobes of the right lung [Figure 1d and e; white arrows]. A small similar morphology lesion measuring approximately 2.0 cm × 2.0 cm (SUVmax - 2.1) was noted in the lower lobe of left lung [Figure 1f and g; white arrows]. The histopathology slides were reviewed on the ^{18}F-FDG PET/CT findings. Hematoxylin and eosin-stained slides [Figure 1h; ×100, low-power image] showed nodular aggregates of poorly cohesive cells. High-power image [Figure 1i; ×400, high-power image] showed cuboidal to columnar atypical cells displaying small round vesicular nuclei, inconspicuous nucleoli and moderate amount of pale eosinophilic cytoplasm. Immunohistochemistry of the tumor was positive for TTF-1 and negative for p40 and synaptophysin. The patient then underwent surgical removal of the tumors on either side and is now on follow-up.

Pulmonary sclerosing pneumocytoma (PSP), previously known as pulmonary sclerosing hemangioma, is an exceedingly rare neoplasm of the lung, first described by Leibow and Hubbell in 1956.[1] The tumor consists of a dual population of immature Clara cells (Type II pneumocytes) and embryonic respiratory epithelium (round cells). These are usually slow growing with a benign disease course but can easily be mistaken for carcinoid tumors or adenocarcinoma in cytology or histopathology specimens,[2] as was with

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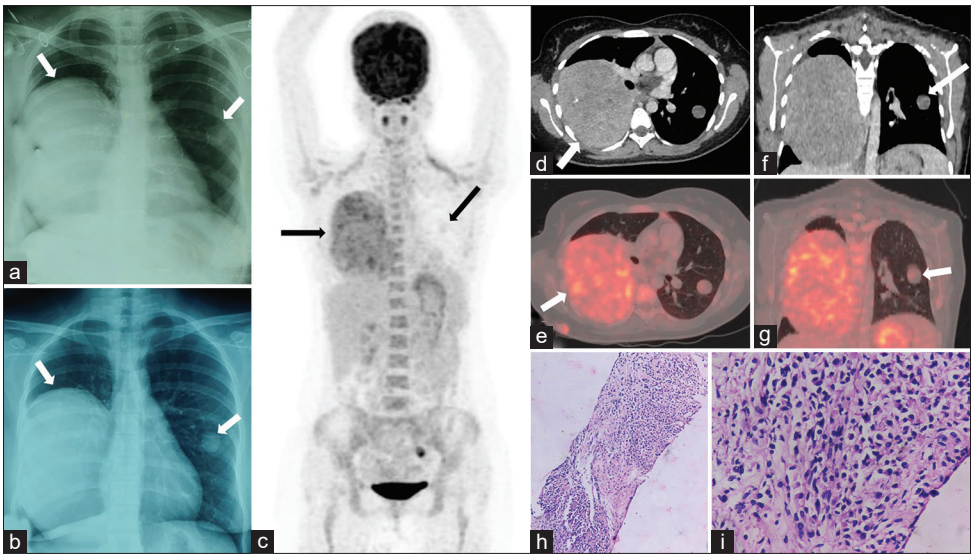

Figure 1: Panels (a-b) are chest radiographs of the patient showing the opacities in the bilateral lung fields. Panel (c) shows the whole body 18F-FDG PET/CT maximum intensity projection inhomogeneous FDG uptake in the right hemithorax and a faint focal FDG uptake in the left hemithorax. Panels (d-g) shows the computed tomography and fused PET/CT images showing the lung masses. Panels (h-i) shows the low power and high-power hematoxylin and eosin-stained slides showing cuboidal to columnar atypical cells displaying small round vesicular nuclei, inconspicuous nucleoli and moderate amount of pale eosinophilic cytoplasm.

our case initially. Few studies have reported rare incidences of metastasis to mediastinal lymph nodes[3,4] and stomach.[5] ^{18}F-FDG PET/CT has been used in the evaluation of these tumors with different studies depicting a highly variable ^{18}F-FDG uptake.[6-9] To the best of our knowledge, this is the largest PSP reported till now in the literature. PSP is a benign slow-growing tumor, but rare occurrences of metastases warrant long-term follow-up. ^{18}F-FDG PET/CT is useful in the detection of rare occurrences of metastases in cases of PSP thereby giving a guidance to management.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient (s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

References

1. Liebow AA, Hubbell DS. Sclerosing hemangioma (histiocytoma, xanthoma) of the lung. Cancer 1956;9:53-75.
2. Travis WD, Brambilla E, Nicholson AG, Yatabe Y, Austin JH, Beasley MB, *et al.* The 2015 World Health Organization classification of lung tumors: Impact of genetic, clinical and radiologic advances since the 2004 classification. J Thorac Oncol 2015;10:1243-60.
3. Soo IX, Sittampalam K, Lim CH. Pulmonary sclerosing pneumocytoma with mediastinal lymph node metastasis. Asian Cardiovasc Thorac Ann 2017;25:547-9.
4. Xu HM, Zhang G. A rare case of pulmonary sclerosing hemagioma with lymph node metastasis and review of the literature. Int J Clin Exp Pathol 2015;8:8619-23.
5. Bae YS, Ro JY, Shim HS, Hong SW, Yoon SO. Pulmonary sclerosing haemangioma with metastatic spread to stomach. Histopathology 2012;60:1162-4.
6. Chen Q, Wu LJ, Hu H, Song J, Wu Y, Yan J, *et al*. A case of pulmonary sclerosing hemangioma with low (18) FDG uptake in PET. Oncol Lett 2012;3:646-8.
7. Miura N, Shoji F, Kawano D, Morodomi Y, Ito K, Yano T, *et al*. A pulmonary sclerosing hemagioma with an increasing uptake on PET. Thorac Cardiovasc Surg 2009;57:498-9.
8. Lin KH, Chang CP, Liu RS, Wang SJ. F-18 FDG PET/CT in evaluation of pulmonary sclerosing hemangioma. Clin Nucl Med 2011;36:341-3.
9. Kamaleshwaran KK, Rajan F, Mehta S, Mohanan V, Shinto AS. Multiple pulmonary sclerosing hemangiomas (pneumocytoma) mimicking lung metastasis detected in fluorine-18 fluorodeoxyglucose positron emission tomography/computed tomography. Indian J Nucl Med 2014;29:168-70.