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Case Report

18 F FDG PET-CT Scan Findings in a Rare Case of Pulmonary Hyalinising Granuloma

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ABSTRACT

Pulmonary hyalinising granuloma (PHG) is a benign lung disease. It is a rare disease of unknown aetiology. Less than 150 cases are reported. Its aetiology has not been established but the underlying cause is thought to be the deposition of an immune complex in lung parenchyma or autoimmune process. It usually presents as solitary or multiple lung nodules. PHG has a good prognosis. Solitary lesions are treated by resection and multiple lesions are treated with immunosuppressive drugs with variable responses. Here, we report a case of a 68-year-old female who presented with two episodes of haemoptysis. On investigation, chest computed tomography (CT) reveals multiple lung nodules on both sides, 18 F fluorodeoxyglucose (FDG) positron emission tomography and CT scan reveal mildly FDG avid and non-FDG avid subpleural and parenchymal nodular lesions of varying sizes with calcification noted scattered diffusely in both lung fields. Pathology findings are suggestive of fibrocollagenous tissue with tiny foci of epithelial cells arranged as papillae, cuboid cells with minimal atypia, mitosis, and necrosis not seen and no lymphoid tissue seen, suggestive of PHG.

Keywords: PET-CT Scan, Pulmonary hyalinising granuloma, FDG

INTRODUCTION

Pulmonary hyalinising granuloma (PHG) is a benign lung disease. It is a rare disease of unknown aetiology. It was first described by Engelman *et al*. in 1977.[1] The patient presents with single or multiple lung masses or lung nodules, sometimes with calcification. The patient may be relatively asymptomatic or sometimes present with chest discomfort or shortness of breath.[2] The aetiology of PHG is not known. It is thought to be due to deposition of immune complex in lung parenchyma or autoimmune process or exaggerated immune response to antigenic stimuli caused by infection or an autoimmune process.[1,3] The disease has variable presentation mimicking primary lung disease to metastatic disease. Histopathological examination reveals fibrocollagenous tissue arranged as papillae or in the form of central lamellar collagen sometimes arranged in whorls and surrounded by giant cells.[4] On 18 F fluorodeoxyglucose Positron Emission Tomography Computed Tomography (FDG PET-CT) scan, there is variable uptake in lesions, there are FDG avid as well as non-FDG avid nodular lesions. PHG is said to be associated with mediastinal and retroperitoneal fibrosis and also associated with autoimmune, haematological, thromboembolic, and infectious diseases.

The treatment of choice is surgical resection. Solitary lesions can be treated by resection with good response and multiple lesions are treated with immunosuppressive drugs with variable responses.[5]

CASE REPORT

A 68-year-old female reported two episodes of haemoptysis; chest radiograph suggestive of multiple nodules of varying sizes noted in both lung fields. CECT chest suggestive of multiple well-defined nodules in both lobes of the lung, few left cervical lymph nodes, and visualised liver shows multiple hypoechoic lesions. USG-guided FNAC from the left cervical lymph node reveals pauci cellular with occasional lymphoid cells, malignancy cannot be ruled out. USG abdomen reveals multiple cystic lesions in both lobes of the liver. Cervical lymph nodes biopsy suggestive of fibrocollagenous tissue with tiny foci of epithelial cells arranged as papillae, cuboid cells with minimal atypia, mitosis, and necrosis not seen and no lymphoid tissue seen.

On immune histochemistry, cells are immunonegative for CD31, chromogranin, and S-100. In history, the patient was treated for pulmonary Koch's in 1983. PET-CT scan [Figure 1]. suggestive of multiple mildly FDG avid and non-FDG avid subpleural and parenchymal nodular lesions of varying sizes with calcification noted scattered diffusely in both lung fields with maximum standard uptake value of 2.23, multiple mildly FDG avid and non-FDG avid lymph nodes with calcification involving B/L cervical and mediastinal lymph nodes and multiple simple hepatic cysts in both lobes of the liver.

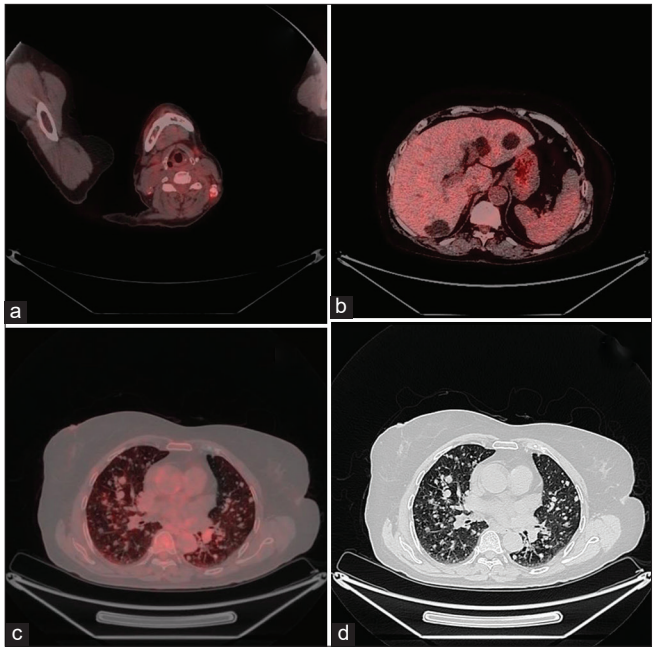

Figure 1: 18 F fluorodeoxyglucose positron emission tomography computed tomography (FDG PET-CT) scan image reveals (a) axial section of neck region in soft-tissue window shows multiple mildly FDG avid cervical lymph nodes with calcification, (b) axial section at liver region shows multiple well-defined cystic lesions in both lobes of liver, (c) axial view at lung region in lung window-fused (PET and CT) images shows multiple mildly FDG avid and non-FDG avid subpleural and parenchymal nodules of varying sized in both lung fields (some with calcification), (d) axial view at lung region in lung window CT images shows multiple subpleural and parenchymal nodular opacities of varying sizes in both lung fields.

DISCUSSION

PHG is a rare benign disease of unknown aetiology. There are limited cases reported in the literature which reveal that there is no preponderance of specific gender or race. It develops at an age ranging from 15 to 77 years with a mean age of presentation is 44 years.[3] Aetiology of disease is unknown but it is assumed to be associated with the aberrant immune response to infectious agents (mycobacterial and fungal), autoimmune processes such as sarcoidosis, vasculitis, and multiple sclerosis.[3,6,7] Clinical presentation is non-specific; it varies from non-specific symptom such as cough, chest discomfort, haemoptysis, fever and shortness of breath to incidental detection of nodular lesion in chest radiograph in asymptomatic patients.[8-11]

On investigation, chest radiograph shows mass lesion or multiple nodular lesion(s) in lung. CT chest reveals mass lesion or multiple nodular lesions of varying sizes diffusely scattered in both lung fields with or without calcification and sometime with cavitation.[12] FDG PET-CT scan reveals FDG avid and non-FDG avid nodules. It also helps in the involvement of nodal stations as well as distant metastatic site.[13] Diagnosis of PHG relies on histopathological examination. It has characterised by lamellar collagen deposition with inflammatory reaction. Focal necrosis and calcification with no atypia or malignancy are noted.[14,15] Treatment of PHG is surgical resection. Solitary and peripherally located lesions can be surgically resected with a good prognosis. Multinodular and bilateral disease is treated with corticosteroids and immunosuppressants with variable response and unclear therapeutic benefits.[3]

CONCLUSION

PHG is a rare disease but it should be considered in the differential diagnosis of lung nodule/nodules with calcification evaluation. Clinical and radiographic findings are atypical and can mimic various benign or malignant pulmonary aetiologies. Our case presents the role of FDG PET-CT scan with various other imaging findings in cases of PHG.

Declaration of patient consent

Patient's consent not required as there are no patients in this study.

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Conflicts of interest

There are no conflicts of interest.

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