Pulmonary Recurrence of Lymphomatoid Granulomatosis Diagnosed on F-18 FDG PET/CT

Abstract
Lymphomatoid granulomatosis (LYG) is a rare, extranodal B-cell lymphoproliferative disorder. The disease commonly presents with nonspecific symptoms and imaging features, making the diagnosis and therapeutic response assessment difficult. While histopathology is the mainstay of diagnosis, different imaging modalities such as computed tomography (CT), magnetic resonance imaging, or F18-fluorodeoxyglucose positron emission tomography/computed tomography (F-18 FDG PET/CT) can help in identifying the different organs involved. We present a case of LYG, post chemotherapy in remission for the past 5 years, presenting with symptoms of disease recurrence.

Keywords: F-18 FDG PET/CT, lung, lymphomatoid granulomatosis, recurrence

A 31-year-old-man, diagnosed case of lymphomatoid granulomatosis (LYG) of the lung and soft tissue lesion in the paravertebral location on computed tomography (CT), post six cycles of rituximab-cyclophosphamide, hydroxydaunorubicin, oncovin, and prednisolone (R-CHOP) in remission for the past 5 years, presented with symptoms of fever, malaise, dry cough, and shortness of breath for the past 2 weeks. X-ray of the thorax revealed multiple bilateral lung nodules. The patient underwent F18-fluorodeoxyglucose positron emission tomography/CT (F-18 FDG PET/CT) to look for disease recurrence and site of involvement [Figure 1]. PET/CT showed FDG-avid multiple lung nodules of variable sizes with few non-FDG-avid small thin-walled cysts. Following this, the patient underwent PET/CT guided biopsy of the lung nodule which revealed LYG [Figure 2].

LYG is a very rare angiocentric and angiodestructive Epstein–Barr virus-associated B-cell lymphoproliferative disorder.[1] It is more common in men and generally occurs in middle-aged persons. Although lung is the most common organ affected, involvement of other organs such as skin, central nervous system (CNS), kidney, liver, heart, and lymph node has also been documented.[2,3] The disease commonly presents with nonspecific symptoms such as fever, chest pain, weight loss, and shortness of breath. The rarity of the disease along with nonspecific presentation contributes to the delay in its diagnosis. Recurrence is common and may include refractory disease or progression to high-grade lymphoma seen in ~12% cases. The overall mortality of the disease ranges between 53.0% and 63.5%. While the diagnosis of LYG is done by histopathological examination of the involved sites, imaging features can help in reaching the diagnosis. Pulmonary LYG shares many of the same imaging features with more common condition such as infection, sarcoidosis, pulmonary metastases, Wegener granulomatosis, and pulmonary lymphoma and should always be considered when other more common diagnoses have been excluded. The typical finding of LYG on CT includes multiple irregular, coarse parenchymal nodules largely in the peribronchial distribution or along the interlobular septa. Small thin-walled cystic lesion along with mediastinal lymphadenopathy may also be seen.[6,7] Magnetic resonance imaging (MRI) is not of much help in the pulmonary LYG as the findings are nonspecific and indistinguishable from lymphoma or inflammatory disorders.[8] However, MRI may prove useful in the diagnosing LYG of the CNS.[9,10] Lesions of LYG show high metabolic activity on F18-FDG; hence, a
whole-body PET/CT scan can assist in accurate mapping of the disease extent in pretherapy scan.\textsuperscript{[11,12]} Another utility of F18-FDG PET/CT is its potential to be used as an imaging tool to monitor response to therapy and to identify the site of disease in case of suspected recurrence.\textsuperscript{[13]} F18-FDG PET/CT scan done in the present case helped in identifying the site and extent of recurrent disease.

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.

Financial support and sponsorship
Nil.

Conflicts of interest
There are no conflicts of interest.

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