Multimodality Appearances of Marginal Zone Lymphoma Masquerading as Cryptogenic Organizing Pneumonia-serial Chest Radiograph and High-resolution Computed Tomography Appearances: (^{18}F) Fluorodeoxyglucose Positron Emission Tomography/Computed Tomography Staging Utility

Abstract

Marginal zone lymphoma (MZL) is a group of low-grade, indolent, non-Hodgkin lymphomas rarely manifesting in the lungs. A 46-year-old man presenting with shortness of breath and cough was investigated and treated over 10 months for an atypical pattern of lung disease in keeping with cryptogenic organizing pneumonia (COP). Initial lung biopsies were nondiagnostic – repeat sampling eventually showed MZL. Staging whole-body (^{18}F) fluorodeoxyglucose (FDG) positron emission tomography/computed tomography (PET/CT) demonstrated multisystem stage IV disease with intensely avid widespread pulmonary changes resembling COP. The case elegantly illustrates that pulmonary MZL can present insidiously masquerading as COP and shows the value of (^{18}F) FDG PET/CT to stage extranodal MZL.

Keywords: *Fluorodeoxyglucose positron emission tomography/computed tomography, marginal zone lymphoma, organizing pneumonia*

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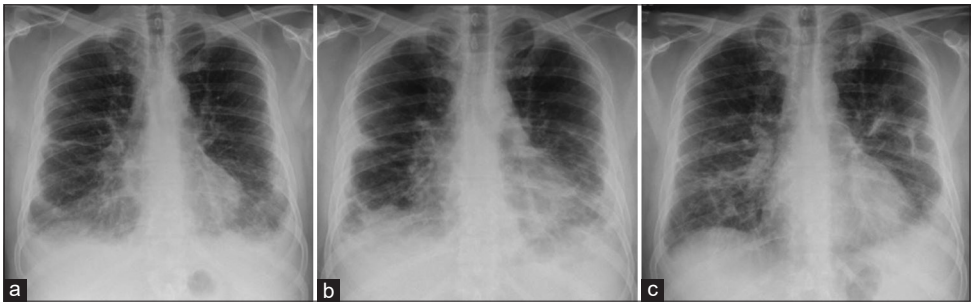

Figure 1: A 46-year-old man presenting with shortness of breath and cough was investigated and treated over 10 months with slow-onset symptoms and insidious imaging findings suggestive of organizing pneumonia. Sequential chest radiographs at presentation, 2 months and 10 months (a-c), showed patchy migratory consolidation in a predominantly peripheral and peribronchovascular distribution, nodularity, and varying interstitial changes

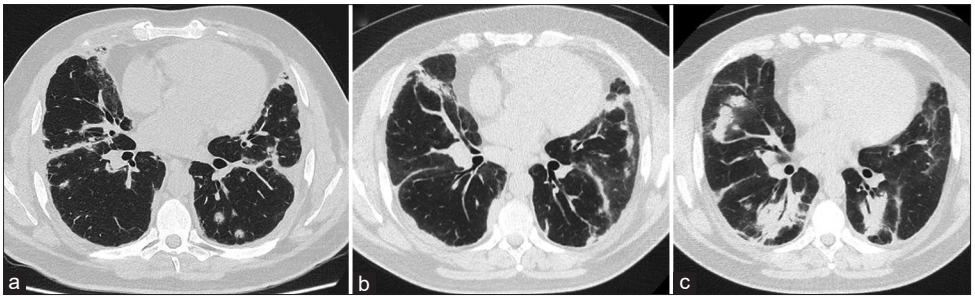

Figure 2: Serial high-resolution computed tomography (CT) of the chests at presentation and 3-month and 10-month follow-up (a-c) show multiple alveolar opacities with a subpleural and peribronchial predominance, interlobular septal thickening, and ground-glass opacities, which migrate and progress over time, typical of cryptogenic organizing pneumonia (COP).[1,2] Symptoms and imaging features did not completely resolve with glucocorticoid treatment. Initial lung biopsies were nonspecific and nondiagnostic – repeat sampling eventually revealed a diagnosis of marginal zone lymphoma (MZL). MZL has rarely been described presenting in a COP pattern[3,4]

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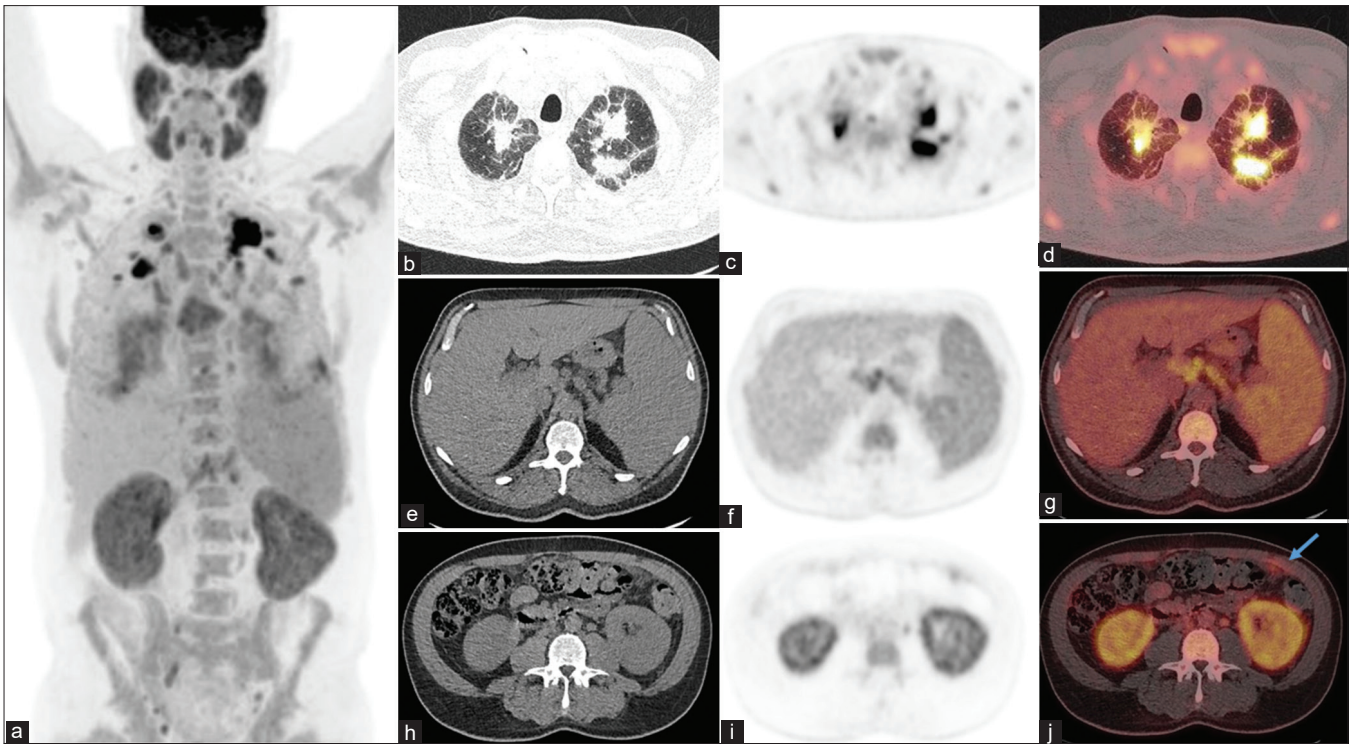

Figure 3: Half-body (skull base to mid-thigh) (^{18}F) fluorodeoxyglucose (FDG) positron emission tomography (PET)/CT was performed for staging; maximal intensity projection (a) demonstrates stage IV disease with avid coalescing airspace opacification in both lungs, splenomegaly, diffuse renal parenchymal activity, abdominopelvic lymphadenopathy, and diffuse bone marrow activity. Axial CT, (^{18}F) FDG PET, and fused (^{18}F) FDG PET/CT of the chest (b-d) demonstrate intensely avid pulmonary changes with interlobular septal thickening and architectural distortion with upper lobar predominance. Axial CT, (^{18}F) FDG PET, and fused (^{18}F) FDG PET/CT of the upper abdomen (e-g) show avid nodes and moderate splenomegaly. Axial CT, (^{18}F) FDG PET, and fused (^{18}F) FDG PET/CT of the mid-abdomen (h-j) exhibit diffuse renal parenchymal activity and ill-defined left anterior omental uptake (arrow) as a further extranodal disease. Although historically classified as a "nonavid" lymphoma, extranodal MZL has been shown to be PET avid in the majority of cases.[5] With the risk of occult disseminated disease, as shown here, metabolic imaging has been shown to improve the accuracy of staging,[6,7] and is suggested as part of more recent guidelines.[8] This case highlights that pulmonary MZL can present insidiously resembling COP clinically and on conventional imaging and shows the added value of metabolic imaging in the form of (^{18}F) FDG PET/CT both in defining disease involvement and distant 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.

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Conflicts of interest

There are no conflicts of interest.

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