Positron-emission tomography-computed tomography appearance of COVID-19 infection

An elderly man who had recently recovered from COVID-19 infection presented to the post-COVID clinic of our hospital for checkup. He was diagnosed to have Hodgkin's lymphoma (nodal only disease) a year back and had received six cycles of chemotherapy.

A day prior to review, he had undergone a fluorodeoxyglucose positron-emission tomography–computed tomography (FDG PET CT) to assess the response to chemotherapy. Maximum intensity projection [Figure 1] axial [Figure 2] and coronal [Figure 3] images showed patchy subsegmental consolidation, ground-glass attenuation, and interstitial septal thickening involving all lobes of both lungs with associated heterogeneously increased parenchymal FDG uptake. These findings are consistent with lung involvement due to COVID-19 infection.

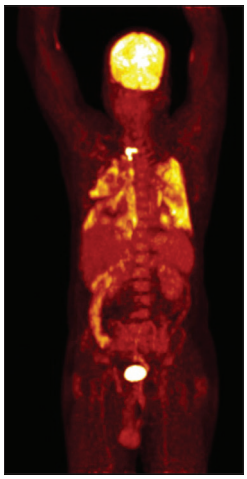

Figure 1: Maximum intensity projection image of whole-body fluorodeoxyglucose positron-emission tomography–computed tomography scan showing hypermetabolic residual nodal disease involving the right paratracheal node with bilateral hypermetabolic consolidation patches noted in all segments of both lungs

The most striking features of FDG PET CT in patients with COVID-19 are increased FDG uptake in the ground-glass densities and plaques, which are typical CT findings in early disease. FDG uptake of lung lesions of COVID-19 has an atypical appearance in terms of density-based consideration, and it suggests a high level of inflammatory processes occurring in the lung.[1-3] The intense FDG uptake happens in the active stage of disease and progression but persists even during recovery stage of COVID.[4] This could be caused by nonviable RNA remnants of SARS-CoV-2, immunotherapeutic response, or angiovascular damage.[5] Metabolic changes precede morphological changes, and hence, functional imaging using PET is a useful early predictor of therapeutic response in inflammatory conditions. Thus, FDG PET CT has the potential to enhance our understanding of the pathogenetic mechanisms of COVID-19.

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

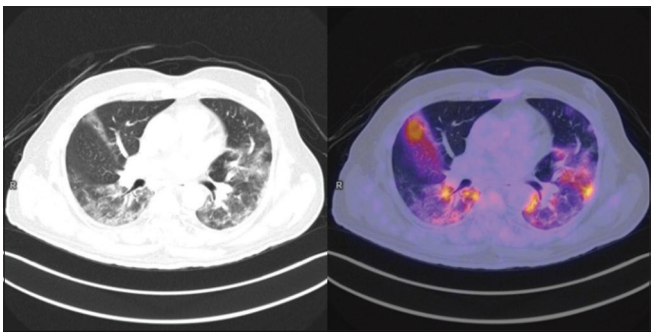

Figure 2: Axial high-resolution computed tomography image and corresponding fluorodeoxyglucose positron-emission tomography image showing predominantly peripheral ground-glass opacities with intralobular and interlobular interstitial septal thickening and subsegmental peripheral consolidation involving both lungs

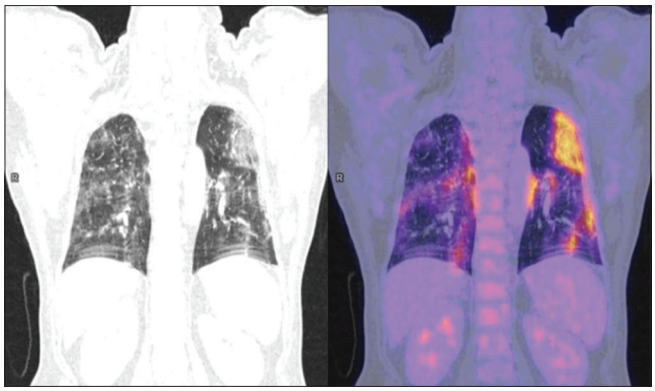

Figure 3: Coronal image of the positron-emission tomography–computed tomography images demonstrating heterogeneously fluorodeoxyglucose avid consolidation patches in a vertical curvilinear pattern

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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Nil.

Conflicts of interest
There are no conflicts of interest.

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