

18-F Fluorodeoxyglucose Positron Emission Tomography/Computed Tomography in a Rare Case of Post-COVID-19 Mucormycosis of Femur

Abstract

COVID-19 disease was spread rapidly on a global scale. Corticosteroids were believed to reduce the inflammatory lung injury, however, its side effects include increased secondary infections, immunomodulation, and manifestation of latent diabetes mellitus. The incidence of mucormycosis infection was high in post COVID-19-infected patients. Mucormycosis of femur in cases of post-COVID-19 infection was extremely rare and not yet reported. We report a case of COVID-19 recovered patient with mucormycosis of right distal femur, who underwent 18Ffluorodeoxyglucose (18FFDG) positron emission tomography/computed tomography (PET/CT) for additional sites of disease. This case highlights potential of 18FFDG PET/CT in the management of mucormycosis.

Keywords: 18Ffluorodeoxyglucose, COVID-19, mucormycosis, positron emission tomography/computed tomography

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Case Report

We report a case of 55-year-old man, who recently recovered from COVID-19 pneumonia presented with complaints of pain, swelling of right knee joint, and discharging sinus. The patient underwent debridement outside our hospital. Pus culture was suggestive of mucormycosis. The patient underwent 18Ffluorodeoxyglucose (18FFDG) positron emission tomography/computed tomography (PET/CT) scan to know further sites of disease involvement. On F18 FDG PET-CT scan, maximum intensity projection image (MIP) shows diffuse FDG uptake in the right distal femur region [Figure 1a]. Diffuse FDG uptake with few lytic-sclerotic lesions and cortical irregularity was seen in the right distal femur on the medial aspect with surrounding soft tissue component (SUV max 4) [Figure 1d]. Mildly FDG-avid mucosal thickening was noted in the left maxillary sinus (SUV max 3.5) [Figure 1c]. Another mildly FDG-avid cavitary lesion was noted in the lower lobe of right lung (SUV max 3) [Figure 1b]. The patient underwent excision of distal right femur, FESS for left maxillary sinusitis, and right lung lobectomy. Histopathology of right distal femur, left maxillary sinus

thickening, and right lung cavitary lesions were suggestive of mixed fungal infection of mucormycosis and aspergillus species.

Mucoraceae are ubiquitous saprophytic fungi. They are common inhabitants of decaying matter found in bread, soil, air, dust, and hospital ward rooms.^[1-3] In addition to immunosuppression, other risk factors for mucormycosis include diabetes mellitus, renal failure, iron chelation therapy, severe malnutrition, and trauma.^[4]

The fungus usually enters the host through respiratory tract and exhibits remarkable affinity for arteries. It spreads along the internal elastic lamina causing thrombosis and infarction.^[5,6] It mostly involves the sinuses causing rhinosinusitis. Other sites of spread include orbit, orbital apex, internal carotid artery, cavernous sinus, skull base, pterygopalatine fossa, lung, and brain.^[2,3]

Increase in mucormycosis in India is due to increased use of steroids, uncontrolled diabetes mellitus, and COVID-19 pneumonia.^[7]

Early diagnosis and prompt surgical management aids in controlling the extent and severity of disease. Diagnosis usually depends on clinical features,

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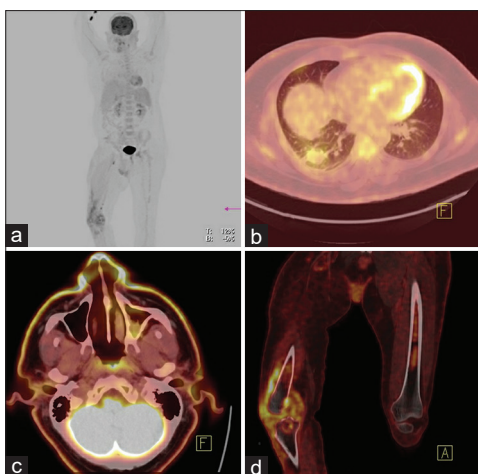


Figure 1: Maximum intensity projection whole body positron emission tomography image (a) showed increased ^{18}F fluorodeoxyglucose uptake in the right knee joint. Positron emission tomography computed tomography (b) images of the lung showing hypermetabolic cavitory lesion in the right lung lower lobe. Positron emission tomography computed tomography (c) images of head showing hypermetabolic mucosal thickening in the left maxillary sinus. Positron emission tomography computed tomography (d) images of femur showing few lytic-sclerotic lesions and cortical irregularity in the right distal femur on the medial aspect

pathological findings, and imaging. Imaging plays an important role in defining the extent of involvement.^[8]

This case report highlights the importance of ^{18}F FDG PET-CT in diagnosing additional sites of infection in mucormycosis.

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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