Malignant melanoma with cavitary pulmonary metastasis: Diagnostic dilemma resolved by FDG PET/CT guided biopsy

Sir,

We present a case of a 70-year-old male patient who was operated 5 years back for a malignant melanoma of right big toe. He was again operated 3 years ago for the recurrence in his right thigh. Patient was in complete remission and on regular follow up since then. Patient was apparently normal till 3 months back when he presented with two episodes of hemoptysis. Chest X-ray revealed a left lung upper lobe thick walled cavitary lesion. Computed tomography (CT) revealed the same findings along with hemorrhage in the surrounding area. From the above findings, it could not be ascertained whether the mass was infective or metastatic in nature. Therefore, a CT-guided biopsy was done which revealed it to be infective in nature (resolving pneumonia). But even after 3 weeks of appropriate antibiotic coverage, the mass neither resolved nor decreased in size. Repeat CT-guided biopsy revealed necrotic tissue but could not pinpoint the diagnosis. It was then that the patient was referred for the ^{18}F FDG PET/CT, which revealed a cavitary lesion in left lung upper lobe with increased uptake of the radiotracer along its margins [Figure 1a-c; arrows]. But the clinical query was still unanswered, so a PET/CT-guided biopsy was undertaken. PET/CT-guided biopsy from the lung mass [Figure 1d and e] revealed malignant melanoma cells which were positive for HMB-45 and S-100 and were negative for cytokeratin. So, PET/CT-guided biopsy from the margins of the cavitary lesion showing increased uptake aided in the accurate diagnosis of pulmonary metastasis from malignant melanoma. To the best of our knowledge, this is the first case of malignant melanoma with isolated cavitary lung metastases.

Foot melanoma comprises 3 to 5% of all melanoma cases and presents a challenge to the treating physician who has to choose between adequate resection and preservation of limb function.[1] Melanomas which metastasize beyond its locoregional site generally predict a poor outcome with a mean survival of around 6 months only.[2] Patients with melanoma metastases to lung have a median survival of 1 year, while those to sites other than lung have a median survival of around 18 months.[3] Cavitary lung metastases are extremely rare and represent only 4% of cases of lung metastases and usually arise from squamous cell carcinoma (especially of the head and neck), adenocarcinomas, and sarcomas.[4] FDG PET is useful in the initial staging of patients with cutaneous malignant melanoma to help detect soft tissue, lymph node, and visceral metastases.[5] In a meta-analysis comparing ultrasonography (USG), CT, and PET/CT for staging and surveillance of melanoma patients, USG was found superior for the detection of lymph node metastases while PET/CT was found superior for distant metastases.[6] The proper guideline-based or targeted therapy for a patient can only be administered after proper histopathological diagnosis of the tumor site or site of metastases, which at times can be difficult due to prior chemotherapy or radiation therapy changes.[7] FDG PET/CT can visualize vital areas of the tumor with increased metabolic activity and can pin-point the tissues from which biopsy can be taken. This increases its diagnostic value.[8] In this case, PET/CT-guided biopsy helped to pin-point the diagnosis of cavitary metastases to the lung which originated from the malignant melanoma of the right toe and hence helped in changing the treatment plan of the patient.

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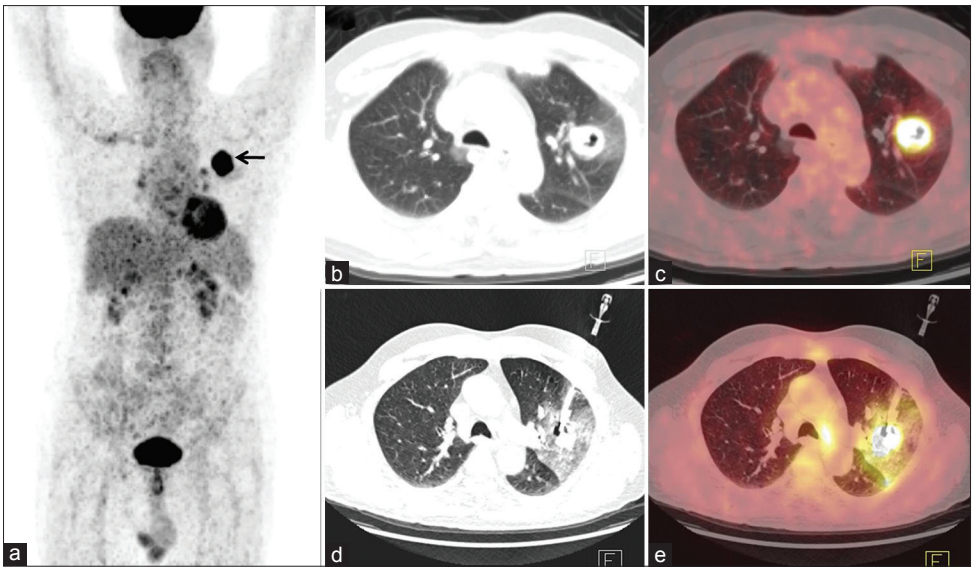

Figure 1: ^{18}F FDG PET/CT revealing a cavitary lesion in left lung upper lobe with increased uptake of the radiotracer along its margins (a-c; arrows). A PET/CT-guided biopsy was performed from the lung mass along the margins where intense uptake was noted (d and e)

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