A Rare Case of Sinonasal Malignant Melanoma – Local, Regional, and Distant Spread Accurately Detected by 18F Fluorodeoxyglucose Positron Emission Tomography/Computed Tomography

Abstract

Melanomas are usually cutaneous in origin but rarely can also arise from the mucosal linings in the body. Sinonasal melanomas arise from the mucosa of the nasal cavity and paranasal sinuses, which account for approximately 50% of mucosal melanomas in the body. 18F fluorodeoxyglucose positron emission tomography-computed tomography (^{18}F-FDG PET/CT) has proven its role in malignant melanoma in staging especially in stage III and IV disease, restaging, assessing response to therapy and had affected in treatment change in significant number of cases. We present a case of sinonasal melanoma who underwent FDG PET/CT for staging and showed cervical lymph node and marrow metastases.

Keywords: *18F fluorodeoxyglucose positron emission tomography-computed tomography, sinonasal melanoma, staging*

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A 34-year-old man presented with pain and swelling of the left maxillary region of 4 months duration. This was associated with decreased sensation in left cheek in the maxillary region. The patient underwent nasal endoscopy which revealed growth arising from the left maxillary sinus extending to left nasal cavity with deviation of nasal septum to the right side. Magnetic resonance imaging (MRI) of head and neck done revealed a heterogeneously enhancing mass in the left maxillary sinus causing erosion of medial, lateral, and anterior walls of maxillary sinus and medial and inferior wall of left orbit. Also enlarged left submandibular and upper deep cervical lymph nodes were noted. Biopsy was taken from the mass which revealed poorly differentiated tumor cells strongly positive for HMB-45 and S-100 and negative for CK. The patient was sent for 18F fluorodeoxyglucose (^{18}F-FDG) positron emission tomography/computed tomography (PET/CT) for staging. Maximum intensity projection images showed FDG avid lesion in the left maxillary region with focal uptake in the left neck and lumbar region[Figure 1a]. PET-CT images revealed a soft-tissue density mass lesion involving the left maxillary sinus with erosion of medial, lateral, and anterior walls of maxillary sinus extending into left orbit [Figure 1b-d]. It also showed multiple left cervical lymph nodes [Figure 1e-g] and a marrow metastasis to body of L5 vertebra [Figure 1h-j].

Melanomas are usually cutaneous in origin but can also arise from the mucosal linings in the body. Sinonasal melanomas arise from the mucosa of the nasal cavity and paranasal sinuses, which account for approximately 50% of mucosal melanomas in the body.[1] Incidence of mucosal melanomas varies with the population (<1%–1% of all melanomas) with a higher incidence among Asians, especially in Japan.[1-3] Maxillary sinus is the most commonly involved and sphenoid sinus is the least commonly involved among the paranasal sinuses. Sinus melanomas account for only 20% of sinonasal melanomas but are aggressive with a significantly less 5-year survival compared to nonsinus type.[4,5] ^{18}F-FDG PET/CT has proven its role in malignant melanoma in staging, especially in Stage III and IV disease, restaging, assessing response to therapy and had effected in treatment change in significant

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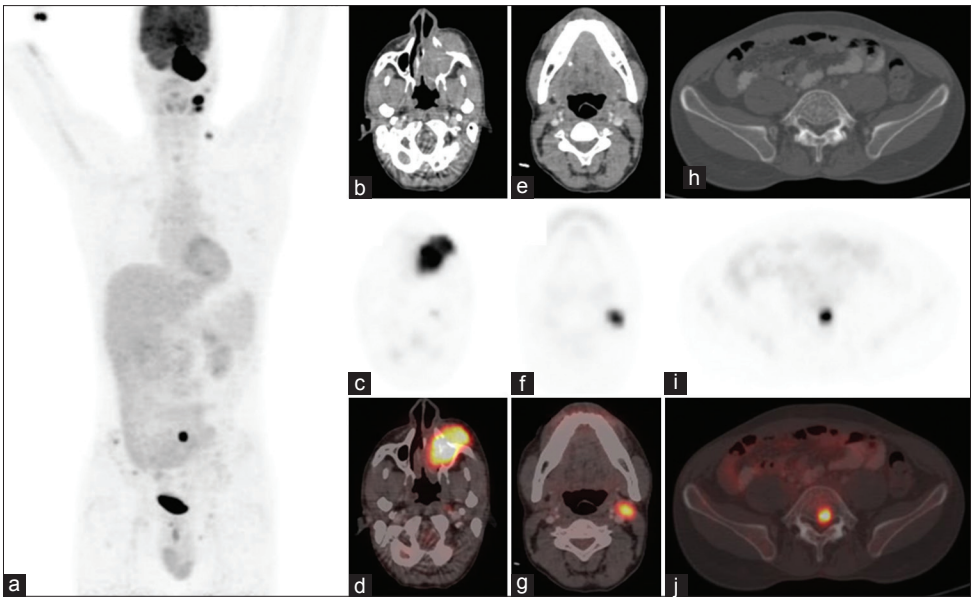

Figure 1: (a) Maximum intensity projection images showed fluorodeoxyglucose avid lesion in the left maxillary region with focal uptake in the left neck and lumbar region. (b-d) Positron emission tomography/computed tomography images revealed soft tissue density mass lesion involving the left maxillary sinus with erosion of medial, lateral and anterior walls of maxillary sinus extending into left orbit. (e-g) Positron emission tomography/computed tomography images showing multiple left cervical lymph nodes. (h-j) Positron emission tomography/computed tomography images showing marrow metastasis to body of L5 vertebra

number of cases.[2,6,7] Since definite treatment of sinonasal melanoma is surgery, accurate delineation of tumor is very important.[5] In a retrospective study by Haerle *et al*., ^{18}F-FDG PET/CT was able to accurately delineate primary lesion, regional and distant metastases.[8] FDG PET/CT is less accurate in melanomas involving skull base, brain, and liver metastases where MRI is superior, to overcome this tracers with less physiological uptake in brain-like 11C-Choline have also tried.[2,8,9] ^{18}F-FDG PET/CT is also used for treatment planning in brachytherapy and high-dose proton beam therapy.[4,10] This case demonstrated the potential utility of ^{18}F-FDG PET/CT for the accurate initial staging of sinonasal melanoma.

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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