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 (18F-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

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 (18F-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.\(^\text{[1]}\) Incidence of mucosal melanomas varies with the population (<1%–1% of all melanomas) with a higher incidence among Asians, especially in Japan.\(^\text{[1‑3]}\) Maxillary sinus is the most commonly involved and sphenoid sinus is the least commonly involved among the sinonasal sinuses. Sinus melanomas account for only 20% of sinonasal melanomas but are aggressive with a significantly less 5-year survival compared to nonsinus type.\(^\text{[4,5]}\) 18F-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 number of cases.
number of cases.\cite{2,6,7} Since definite treatment of sinonasal melanoma is surgery, accurate delineation of tumor is very important.\cite{5} In a retrospective study by Haerle et al., \textsuperscript{18}F-FDG PET/CT was able to accurately delineate primary lesion, regional and distant metastases.\cite{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 \textsuperscript{11}C-Choline have also tried.\cite{2,8,9} \textsuperscript{18}F-FDG PET/CT is also used for treatment planning in brachytherapy and high-dose proton beam therapy.\cite{4,10} This case demonstrated the potential utility of \textsuperscript{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.

References
1. Amit M, Tam S, Abdelmeguid AS, Roberts DB, Takahashi Y, Raza SM, et al. Mutation status among patients with sinonasal mucosal melanoma and its impact on survival. Br J Cancer 2017;116:1564-71.
2. Murphy G, Hussey D, Metser U. Non-cutaneous melanoma: Is there a role for (18)F-FDG PET-CT? Br J Radiol 2014;87:20140324.
3. Eggesbo HB. Imaging of sinonasal tumours. Cancer Imaging 2012;12:136-52.
4. Scepanovic D, Paluga M, Rybnikarova M, Pobijakova M, Masarykova A, Kroslak M, et al. Brachytherapy as a treatment for malignant melanoma of the nasal cavity and nasopharynx – Case report. J Contemp Brachytherapy 2013;5:157-63.
5. Sayed Z, Migliacci JC, Cracchiolo JR, Barker CA, Lee NY, McBride SM, et al. Association of surgical approach and margin status with oncologic outcomes following gross total resection for sinonasal melanoma. JAMA Otolaryngol Head Neck Surg 2017;143:1220-7.
6. Perang P, Marcus C, Subramaniam RM. (18)F-FDG PET/CT and melanoma: Staging, immune modulation and mutation-targeted therapy assessment, and prognosis. AJR Am J Roentgenol 2015;205:259-70.
7. Agrawal A, Pantvaidya G, Murthy V, Prabhsh K, Bal M, Purandare N, et al. Positron emission tomography in mucosal melanomas of head and neck: Results from a South Asian tertiary cancer care center. World J Nucl Med 2017;16:197-201.
8. Haerle SK, Soyka MB, Fischer DR, Murer K, Strobel K, Huber GF, et al. The value of 18F-FDG-PET/CT imaging for sinonasal malignant melanoma. Eur Arch Otolarinngol 2012;269:127-33.
9. Qin C, Hu F, Arnous MM, Lan X. Detection of non-FDG-avid residual sinonasal malignant melanoma in the skull base with \textsuperscript{11}C-choline PET and contrast-enhanced MRI. Clin Nucl Med 2017;42:885-6.
10. Fuji H, Yoshikawa S, Kasami M, Murayama S, Onitsuka T, Kashiwagi H, et al. High-dose proton beam therapy for sinonasal mucosal malignant melanoma. Radiat Oncol 2014;9:162.