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Role of 18F-FDG PET/CT in staging and response to therapy assessment for primary parotid adamantinoma-like Ewing's sarcoma – First case report

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Extra-skeletal Ewing's sarcoma are very rare tumours. Its "adamantinoma-like" novel histological variant is even rarer and has only been reported a few times involving the skeleton. Extra-skeletal occurrence of this variant has only been reported once before. We present the first case where 18F-FDG PET/CT was used both in staging and response to treatment assessment.

Methods and materials: This 30 year old man initially presented to local general hospital with few months history of right parotid swelling. A parotid tumour was diagnosed on CT, and the mass was resected. Histopathology was initially locally reported as adenocarcinoma. Rapid recurrence and growth of the tumour led to referral to our tertiary care hospital. Histology review and additional fluorescence in situ hybridization (FISH) test confirmed the diagnosis of "adamantinoma-like Ewings' sarcoma". The patient was offered VAIA chemotherapy (combined chemotherapy protocol) with radiation therapy. Imaging included PET/CT scans pre-chemotherapy and also after 4 cycles. It was decided that if good response to chemotherapy was demonstrated, surgical resection could be offered.

Results: Pre-chemotherapy PET/CT showed a large 8.5 x 8 cm markedly FDG avid (SUVmax 11.5) right parotid tumour. It reduced to 5.3 x 3 cm after 4 cycles of chemotherapy with significant reduction in FDG avidity (SUVmax 3.9). PET/CT did not show any other disease site. Patient also had resection in addition to radiation therapy.

Conclusion: 18F-FDG PET/CT is a useful technique for staging and response to therapy assessment in primary parotid adamantinoma-like Ewing's sarcoma and helps in making clinical management decisions.

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