

## Detection of Recurrence in Retromolar Trigone using "Puffed Cheek" F-18 FDG PET-CT Scan

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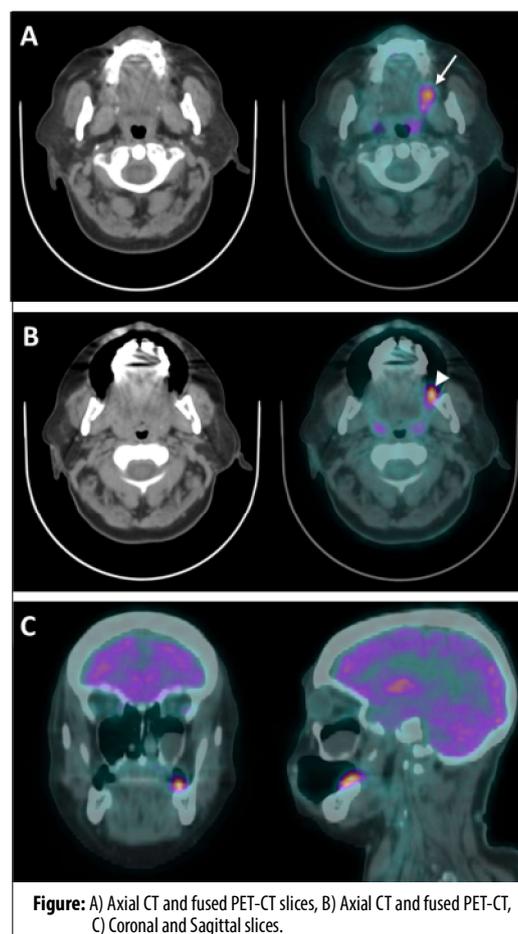
### Abstract

Fluorine-18 Fluorodeoxyglucose positron emission tomography-computed tomography (18FDG PET-CT) is routinely used for post treatment monitoring of oral cavity cancers. In addition to physiological uptake of 18FDG, apposition of anatomical structures poses a big challenge in accurate localization of pathology in oral cavity that is further complicated by surgery and/or radiotherapy related distortion. Case of recurrent Squamous Cell Carcinoma (SCC) of tongue is being presented in a patient who underwent 18FDG PET-CT for post treatment monitoring. Simple 'Puffed Cheek' maneuver helped in accurately localizing tumour recurrence site within the retro-molar trigone.

**Keywords:** Puffed Cheek PET-CT, Retromolar Trigone, Tongue Carcinoma

A 57-year-old female with history of partial glossectomy followed by chemotherapy and radiotherapy SCC tongue underwent PET-CT scan at 10 months post treatment for a mildly swollen left cheek. Scan was performed at 60 minutes after intravenous administration of 410 MBq of 18FDG as per standard protocol.

Axial CT and fused PET-CT slices (Figure A) revealed vaguely outlined, hypermetabolic thickening in left part of oral cavity within lateral margin of surgical bed localizing to buccal and gingival (arrow) mucosa. Limited PET-CT of the patient was acquired in the same session using 'Puffed Cheek' maneuver. On axial CT and fused PET-CT (Figure B), Coronal and Sagittal (Figure C) slices; hypermetabolic nodular thickening was correctly localized to left retromolar trigone region (arrow heads) with well-defined outline and adequate separation from adjacent structures.



**Figure:** A) Axial CT and fused PET-CT slices, B) Axial CT and fused PET-CT, C) Coronal and Sagittal slices.

PET-CT scan is frequently performed in follow up of patients of head and neck cancers due to well established high sensitivity and specificity.<sup>1</sup> Apposition of anatomical structures poses a challenge to identify from which surface the tumour arises as in oral cavity mucosal surfaces are in contact. Weissman described the technique of puffing cheeks by filling air in oral vestibule thus creating negative contrast that separates the labial, buccal and gingival mucosa, while patient breathes through the nose.<sup>2</sup> It also allows better delineation of pterygomandibular raphe and retromolar trigone. In routine practice, limited puffed cheek PET-CT can be acquired if focal uptake is noted in oral cavity on standard images in patients of oral cavity cancer. Studies have shown that PET-CT using puffed cheek maneuver has improved accuracy in localization of oral cavity tumours.<sup>3</sup>

### References

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