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"Hot" vertebra on (18)F-FDG PET scan: a case of vertebral hemangioma

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"Hot" vertebra on  $^{18}\text{F}$ -FDG PET scan: A case of vertebral hemangioma.

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## **Abstract**

An 18F-FDG-PET with CT scan was performed to stage a tongue cancer, revealing the hypermetabolic region in the thoracic vertebra. This corresponded to a benign lesion seen on MRIs and CT.

Although these findings suggested a vertebral hemangioma, “hot” vertebra in FDG-PET was atypical. The final diagnosis was confirmed capillary hemangioma by the scopic biopsy and this lesion was no change at 1 year later. Careful interpretation of metabolic (FDG-PET) and anatomic (CT and MRI) images should be performed to accurately characterize the foci of increased FDG uptake.

**Key Words:** Vertebral Hemangioma; Positron Emission Tomography; CD31

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## Figure Legend

**Figure1:** These Figures show FDG-PET/CT scans of 36-year-old male with squamous cell carcinoma of the tongue was examined with FDG-PET/CT scanning to stage the disease.

FDG-PET/CT scan was performed at 50 min after intravenous injection of 3.7 MBq/kg of  $^{18}\text{F}$ - FDG.

Each figure is maximum intensity projection (MIP) of the PET image (A) and PET/CT fusion image

(B). The FDG-PET scan shows increased metabolism at the Th8 vertebral body (arrow). The

maximum standardized uptake value (maxSUV) was 5.5, but non-fused axial CT (C) image depicted an expansile lesion of Th8 vertebral body with trabecular thickening.

Some authors reported vertebral hemangiomas have been described as cold on FDG-PET or bone scans [1-5]. On the other hand, an internal hemorrhage accompany by inflammation occurs

frequently in hemangioma [6]. Consequently, there is a possibility that high FDG uptake is observed on FDG-PET.

**Figure2:** A MRI of the spine obtained as part of metastatic work-up supposed a hemangioma at Th8 (arrows). Precontrast sagittal T1 weighted image (A) depicting an initially hypointense soft tissue

mass which enhances greatly as seen on postcontrast fat-suppressed sagittal T1 weighted image (B).

Sagittal T2 weighted image (C) demonstrated this lesion with iso-high intensity [7]. These appearance may resemble a metastatic lesion, however, compatible with hemangioma, because of some hemangiomas contain less fat and more vascular stroma thereby producing a low MR signal on

T1 weighted images [8-10].

**Figure3:** Histology was from biopsy of this lesion. Thin-walled blood vessels of capillary size filled with blood and serous fluid extend through the bony trabecular of the vertebral body on Hematoxylin and eosin stain (A; magnification x200). Immunohistochemical staining revealed that the endothelial cells were positive for CD31 (B; magnification x200); consistent with capillary hemangioma [11]. There were no evidence of malignancy or inflammation.





