

Case of the Month—May 2005

## FDG-PET for Staging Head and Neck Cancer

### History

This 57-year-old male presented with a right neck mass. Biopsy of this mass confirmed poorly differentiated carcinoma. Further evaluation revealed primary right nasopharyngeal cancer. Initial clinical staging was Stage IIB (T1N1M0). A PET scan was requested for further evaluation.

### PET Findings

The PET study revealed foci of intense FDG uptake in the nasopharynx and adjacent right neck. These foci are consistent with primary cancer with right cervical lymph node metastasis. In addition, the PET scan identified multiple foci of hypermetabolism involving the left hip, sacrum, T2, and both proximal femora, that are consistent with osseous metastasis.

### Follow-up

A CT of the abdomen and pelvis demonstrated a large lytic lesion in the left hip that is consistent with metastatic bone lesion.

### How Did PET Help?

The PET scan correctly identified distant bone metastasis and upgraded this patient's cancer

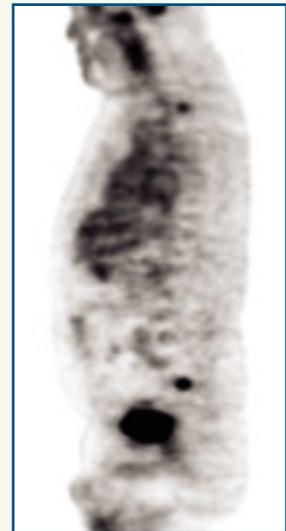
staging. Before the PET study, this patient was staged as IIB; this staging level was upgraded to Stage IV due to the multiple distant bone metastases seen on PET. The patient's radiation treatment plan also changed based on the PET finding. The initial plan focused on neck treatment, but after additional lesions were identified by the PET study, the patient underwent additional treatment for the left hip.

### Discussion

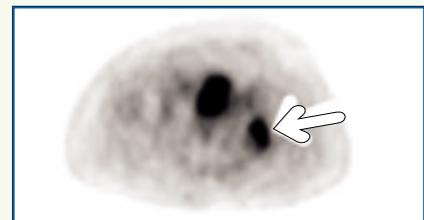
Yen and others studied the value of 18F-FDG-PET in the detection of stage M0 carcinoma of the nasopharynx<sup>1</sup>. They found that the patient-based sensitivity and specificity of 18F-FDG-PET for distant metastases were 100% and 86.9%, respectively. They concluded that the ability of 18F-FDG-PET to detect occult



Coronal image



Sagittal image



Transaxial image demonstrating left hip FDG uptake

distant metastases is valuable in avoiding aggressive locoregional radiotherapy in some nasopharyngeal cancer patients, especially those with with primary disease at a nodal stage of N2-3.

(1) Yen, T.C., Chang, J.T., Ng, S.H., Chang, Y.C., Chan, S.C., Lin, K.J., Lin, W.J., Fu, Y.K., Lin, C.Y. *J Nucl Med.*, 2005 Mar, 46(3):405-10.

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NEPET at Holy Family Hospital  
 70 East Street  
 Methuen, MA 01844  
 (978) 689-4738

NEPET of Greater Lowell  
 Lowell General Hospital Cancer Center  
 295 Varnum Avenue  
 Lowell, MA 01854  
 (978) 458-9872

NEPET at Elliot Hospital  
 One Elliot Way  
 Manchester, NH 03103  
 (603) 663-2370

Massachusetts Mobile PET, P.C.  
 at Anna Jaques Hospital  
 25 Highland Avenue  
 Newburyport, MA 01950  
 (888) 560-4738

Massachusetts Mobile PET, P.C.  
 at Merrimack Valley Hospital  
 140 Lincoln Avenue  
 Haverhill, MA 01830  
 (888) 560-4738