

# P.E.T. CASE OF THE MONTH

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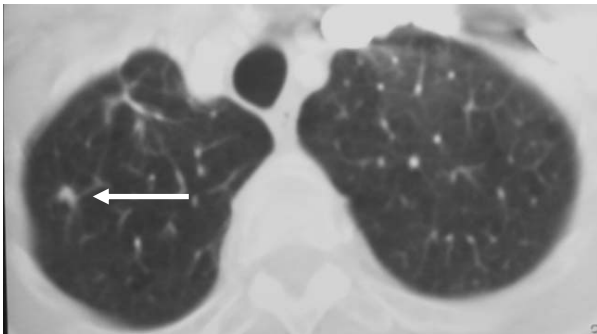


Fig. 1

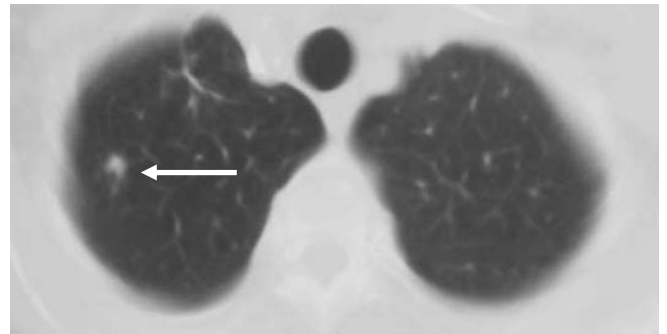


Fig. 2

This 77 year old patient was being followed with sequential chest CT's for a small **lung nodule**. The measurement on the initial CT (Fig. 1) was 6 mm. The second CT five months later (Fig. 2) was read as: " Unchanged stable small 6 mm benign appearing density in the right upper lobe. No suspicious hilar or mediastinal adenopathy. No evidence of malignancy".

A PET scan was obtained for further investigation, which showed:

- Increased FDG uptake in the small right upper lobe nodule consistent with malignancy (Fig. 3, small arrow)
- A large area of intense tracer accumulation in the subcarinal region consistent with a malignant adenopathy (Fig.3, large arrow)

Retrospective review of the chest CT showed fullness in the subcarinal region consistent with an enlarged lymph node (Fig. 4)



Fig. 3

The patient underwent a bronchoscopy. The bronchial brushings from the carina were positive for malignant cells consistent with nonsmall cell carcinoma.

**How did the PET help?** The PET scan outperformed the wait and watch strategies with repeat chest CT's by promptly identifying malignancy in the right upper lobe. No fine needle aspiration of the nodule was necessary which saved the patient from undergoing an invasive procedure with relatively low yield (small sized nodule, higher rate of false negative aspirations). In addition, unsuspected malignant subcarinal adenopathy was discovered which led to prompt diagnosis by bronchial brushings and saved the patient from more invasive procedures with added morbidity.

In a recent meta-analysis of 1474 pulmonary lesions, PET sensitivity and specificity in differentiating between benign and malignant lesions were 96.8% and 77.8% respectively(1).

In a recent study involving 102 patients with apparently resectable non-small cell lung cancer (by conventional imaging work-up), PET upstaged 42 patients and downstaged 20(2).



Fig. 4

(1) JAMA 2001;285:914-924

(2) N Engl J Med 2000;343:254-61