PET/CT Case: Lung Cancer

This 60-year old man presented to the emergency room with shortness of breath. A chest x-ray showed an ill-defined, left lung density. CT scanning showed this density to be a 2.4 cm lingular nodule, without evidence of adenopathy or other abnormalities. A follow-up PET/CT scan was ordered to help evaluate this nodule for malignancy.

The PET/CT showed markedly increased FDG uptake in the lingular nodule (Fig. 1). In addition, three other sites of uptake were seen in the regions of the right ribs, the upper lumbar spine, and the left pubic region (Figs. 2–4). After superimposition of the PET data with the CT images acquired as part of the exam, the latter three sites were seen to be lytic, expansile bone lesions. These findings were felt to be consistent with a left lung cancer with bone metastases. There was no evidence of hilar or mediastinal metastases.

How Did PET/CT Imaging Help?

PET/CT was able to show not only the malignant lung tumor but also that there were distant metastases, upstaging the patient to Stage IV. The CT portion of the study was able to document that the metastases were in bone and to exclude benign etiologies.

Recent studies have shown that PET and PET/CT in particular are the preferred methods for staging patients with non–small cell lung carcinoma (1,2).


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This case was provided by David Seldin, MD, Franklin Square Hospital Center, Baltimore, MD. It was also featured on the Web site of Gabriel Soudry, MD, at www.petcases.com. In addition to the Web site, Dr. Soudry also mails printed versions of his example cases to referring physicians in Franklin Square and the surrounding community. Working with Dr. Soudry and other PET specialists, the PCOE Web site (www.snm.org/PET) features “Views You Can Use,” single-sheet PDFs that include specific cases, images, and references. As a PCOE member, you can add your own contact information to these sheets and distribute them electronically or by printed hard copy to referring physicians for educational purposes.