

Cancer staging

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As physicians, we first and foremost want to avoid doing

harm, and when it comes to cancer treatment that means getting the highest level of precision in staging the disease to assure treatment will be appropriate, necessary, and effective. This is possible through use of the imaging modalities available.

I first saw a 75-year-old man when a chest X-ray incidentally revealed a mass in his lungs. The patient showed no symptoms and quit smoking about 20 years earlier.

I ordered a CT scan, which confirmed a tumor in the upper part of his left lung. A sole lesion would have been an operable Stage I cancer, but we have become increasingly convinced of the value of PET scans in these types of cases. Only PET can give us a broad, rapid indication of whether we need to study other areas of the body more closely in forming an accurate diagnosis.

This patient underwent a PET scan and the study confirmed a main tumor in the lung. It also showed activity in the

paratracheal lymph nodes (figure 1). This immediately meant the patient was at least Stage II, but still possibly resectable by mediastinoscopy. However, the PET scan also showed areas of uptake in the vertebrae (figure 2).

Accordingly, I ordered an MRI of the lumbar spine and pelvis. This study confirmed a one-centimeter lesion in the L4 vertebra. All these imaging studies told us the patient had Stage IV cancer and was inoperable. As a result, we are treating the patient with palliative chemotherapy.

PET alerts us to areas suspicious for metastatic disease. Without a PET study in this case, we would not have had the information necessary to order the MRI. We continue to use PET for this patient, to monitor the extent of the disease, which has regressed in some areas of his body as a result of treatment, but progressed in others. Third-party payers are increasingly reimbursing for use of this study in certain types of cancer, including lung and lymphoma.

image review

Procedure:

Skull-thigh PET

A whole body PET scan performed for staging of the patient's lung carcinoma showed marked FDG accumulation in the patient's left upper lobe mass and additional FDG accumulation in the mediastinum concerning for metastatic disease.

More importantly additional areas of abnormal FDG accumulation were found involving the right acetabulum, the upper thoracic spine and the 4th lumbar vertebral body. Even in retrospect no corresponding abnormalities could be identified on the patient's staging CT scans. Subsequent MRI scans which were only performed because the PET scan raised the concern for osseous metastases in these regions, confirmed the presence of metastatic disease.

The presence of the osseous metastases changed the stage of the patient's disease to Stage IV, rendering him inoperable.

The PET scan spared the patient a thoracotomy and allowed instead for the start of palliative therapy.

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(Study performed/read at Lankenau Hospital.)

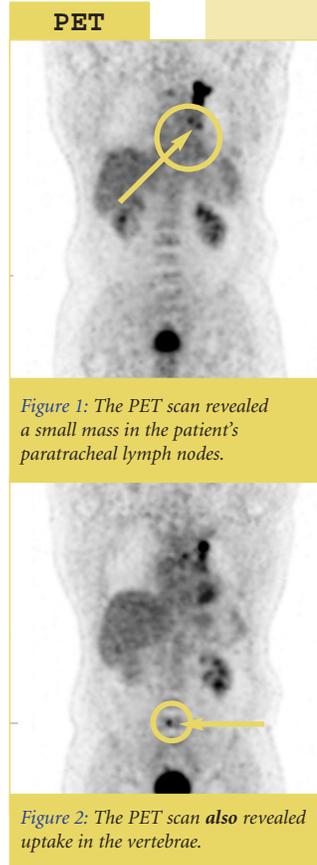


Figure 1: The PET scan revealed a small mass in the patient's paratracheal lymph nodes.

Figure 2: The PET scan also revealed uptake in the vertebrae.