

Case of the Quarter—September 2010

PET/CT for Assessment of Lymphoma and Response to Chemotherapy

Patient History

The patient is a 69-year-old woman with a history of axillary lymphadenopathy. Following a CT scan in December 2009, an excisional biopsy was recommended and conducted in early January 2010. Pathology results of the right axillary lymph node indicated a diagnosis of diffuse large B-Cell lymphoma.

PET/CT Findings

An FDG-PET/CT was ordered to evaluate extent of disease and was performed in late January 2010. The PET/CT showed abnormal hypermetabolic activity within multiple lymph nodes in the neck, axillae, mediastinum, upper abdomen, retroperitoneum, pelvis, and inguinal regions, consistent with patient's history of lymphoma (Figure 1). The PET/CT also showed diffuse uptake in the right breast and axilla from lymphedema and post-surgical changes. The patient received three cycles of chemotherapy followed by a PET/CT two weeks after completion of chemotherapy to assess response.

The follow-up PET/CT was performed in April 2010. This study showed a dramatic reduction in FDG-avid lymphadenopathy. Abnormal nodal uptake in the neck, axillae, mediastinum,



Figure 1. Initial PET/CT, January 2010, showing extent of lymphoma

retroperitoneum, and pelvis have essentially resolved (Figure 2). There are no new or enlarging uptake abnormalities to suggest progression of disease. Areas of uptake seen in the pelvis are due to physiological bowel and bladder uptake, with no evidence of FDG-avid tumor. The previously-seen right breast and axilla uptake has resolved.

How Did PET/CT Help?

PET/CT played an important role in this case in evaluating extent of disease and in assessing response to treatment following chemotherapy. The PET/CT showed response to



Figure 2. Follow-up PET/CT, April 2010, showing response to chemotherapy

chemotherapy and found no evidence of new or progressive disease.

Discussion

In an article published in *The Oncologist*, Delbeke et al¹ consider the important role played by PET/CT as an established imaging modality in lymphoma staging, restaging, monitoring of therapy, and detection of recurrent disease.

1. Delbeke, Dominique et al, "Expert Opinion on Positron Emission Tomography and Computed Tomography Imaging in Lymphoma." *The Oncologist*. 2009; 14 (suppl 2): pp. 30-40.

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