BRYN MAWR HOSPITAL PET/CT IMAGING

case study

Treating to Cancer Stage

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Imaging that provides unique, critical information quickly becomes standard recourse for a diagnostic team. Such is the case with PET/CT scanning for confirming disease status for many cancer patients.

We followed a 63-yearold man for benign prostate enlargement, who had recently

undergone a second transurethral prostate resection for a mass that proved to be smallcell cancer. This is a very rare type of primary prostate cancer, leading us to ask if there was a primary site elsewhere. In addition, it is a very aggressive form of cancer with a high risk of systemic spread. It was essential to determine what other involvement was present.

A bone scan showed possible osseous metastases to the pelvis. An MRI study showed significant lymphadenopathy around the mass (*Figure 1*), with possible invasion of the seminal vesicle and anterior rectum. A body CT showed the mass extending outside of the prostate, with a concerning adjacent bladder abnormality. It also showed multiple, nonspecific liver lesions (*Figure 2*) and revealed small, non-calcified nodules at the base of the lung, confirmed by a subsequent chest CT.

While PET is rarely indicated for prostate cancer, it is invaluable in working up small-cell cancer of the lung. Anytime we have questionable CT findings, we want to see if nodules are metabolically active. The liver lesions here, because of their small size, would have been difficult to assess through biopsy.

PET/CT showed abnormal uptake in the liver (*Figure 3*), as well as in an area adjacent to the rectum and in a bladder diverticulum (but not in the lungs). This confirmed multi-site, systemic disease and made the patient a candidate for chemotherapy, sparing him radiation therapy.

After his first two cycles of chemotherapy, his liver lesions improved on CT. He will undergo three more cycles of chemotherapy, at which point we will re-assess him. If his disease at that point is of a more limited nature, we could consolidate with radiation therapy.

Chemotherapy has now extended this patient's likely survival, and spared him the potential toxicity associated with radiotherapy. Thus PET/CT was critical in permitting us to elect and deliver the appropriate treatment.

image review

Procedure: PET/CT skull base-to-thigh imaging

We acquired PET/CT imaging from the top of the neck to the femora, using low-dose CT for attenuation correction and anatomic correlation. In addition



Figure 1: Significant lymphadenopathy. (*Study read by Ronit K. Devon, MD.*)



Figure 2: Non-specific CT findings in liver.

PET/CT



Figure 3: Abnormal uptake in the liver.

to the activity of the prostate gland itself, there is evidence of extra capsular tumor extension. We note significantly increased uptake within bilateral iliac chain adenopathy and in a node in the upper pelvis.

There are several small foci of increased uptake in the liver, concerning for metastasis. Abnormal uptake is also evident in a soft-tissue nodule within the pelvic cystic structure, suggestive of a tumor within a bladder diverticulum. There is no definitive, abnormal uptake in the neck or thorax.

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(Study performed/read at Bryn Mawr Hospital.)

Please call 610-526-2200 for more information or to schedule an appointment.

Main Line Health Imaging