Sample Case Reports

Sample Case Report 1

PET-CT Scan

Date of Study: 08/09/05

Procedure: Following IV injection of 18-fluoro-2-deoxyglucose (FDG) and a standard uptake period, a non-contrast CT scan followed by a PET scan were acquired along the length of the body from the top of the head to the mid thighs. The non-contrast CT was used for anatomic localization and photon attenuation correction of the PET scan.

FDG Dose: 20 mCi

Correlative Studies: Outside CT of the chest and neck dated 07/08/05.

Clinical History: Right neck mass, undifferentiated cancer by fine needle aspiration. Panendoscopy with biopsy of right base of tongue and right tonsillectomy, both negative.

Findings

Head/Neck: There is a large intensely hypermetabolic nodal mass in the right submandibular region. Nodal activity extends superiorly just medial to the angle of the mandible along the upper internal jugular chain. Activity extends inferiorly with the most inferior extent lying at the level of the thyroid on the right.

Additionally, focally intense activity with associated soft tissue fullness is noted in the right upper pharyngeal tonsillar region.

Chest: Normal activity in all regions.

Abdomen/Pelvis: Normal activity in all regions. Incidental CT findings of a small gallstone and a left renal cyst.

Skeleton: Normal activity in all regions of the axial and proximal appendicular skeleton.

Impression

1. Large hypermetabolic mass in the right submandibular region with closely-associated nodal activity extending superiorly along the upper internal jugular nodes and inferiorly to the level of the thyroid. No evidence for contralateral nodal disease or distant metastases.
2. Hypermetabolic focus in the right pharyngeal tonsil is HIGHLY SUSPICIOUS for the primary site of malignancy.
Sample Case Report 2

PET-CT Scan

Date of Study: 8/10/05

Procedure: Following IV injection of 18-fluoro-2-deoxyglucose (FDG) and a standard uptake period, a non-contrast CT scan followed by a PET scan were acquired along the length of the body from approximately the base of the skull to the mid thighs. The non-contrast CT was used for anatomic localization and photon attenuation correction of the PET scan.

FDG Dose: 19 mCi

Correlative Studies: None


Findings

Head/Neck: Normal activity in the visualized portions of the lower head and in all regions of the neck.

Chest: There is an approximately 8 cm intensely hypermetabolic mass involving the left hilum and AP window region. There is a cluster of intensely hypermetabolic nodes in the posterior paratracheal region as well as several hypermetabolic nodes in the left hilar region adjacent to the primary mass. There is a small area of nodular hypermetabolic activity at the posterior medial pleural margin of the left lower lobe at the same level as the primary tumor. Normal activity in all regions of the right lung.

Abdomen/Pelvis: Normal activity in all soft tissue regions.

Skeleton: Intensely hypermetabolic lytic lesions involving the T10 and L1 vertebral bodies. The corresponding CT scan shows pathologic compression fracture at T10 and extensive lytic changes in the L1 vertebral body. A large hypermetabolic lytic lesion is present in the left acetabulum. No other skeletal abnormalities.

Impression

1) Large recurrent malignancy in the left hilar and AP window region with nodal metastases in the posterior paratracheal and left hilar regions, and probable pleural seeding at the posteromedial margin of the left lower lobe.
2) Osseous metastases at T10, L1 and in the left acetabulum. If clinically indicated, MRI of the lower thoracic and lumbar spine is recommended to exclude cord involvement.
Sample Case Report 3

PET-CT SCAN

Date of Study: 9/21/05

Procedure: Following IV injection of 18-fluoro-2-deoxyglucose (FDG) and a standard uptake period, a non-contrast CT scan followed by a PET scan were acquired along the length of the body from approximately the base of the skull to the mid thighs. The non-contrast CT was used for anatomic localization and photon attenuation correction of the PET scan.

FDG Dose: 15 mCi

Correlative Studies: CT scan 6/2/04

Clinical History: Cavitary pulmonary nodule in right upper lobe. Evaluate for evidence of malignancy and for possible metastatic disease.

Findings

Head/Neck: Normal variant brown fat activity in the lower neck.

Chest: An approximately 4 cm intensely hypermetabolic cavitary mass is present in the lateral periphery of the right upper lobe. Comparison with the recent CT scan of 6/2/04 indicates that the mass appears to have slightly increased in anatomic size. The remainder of the right lung has normal activity. Normal activity in all regions of the left lung and in the bilateral hilar/mediastinal nodal regions.

Abdomen/Pelvis: Normal activity in all regions.

Skeleton: An approximately 1 cm moderately intense focus in the left proximal femur subtrochanteric region which has no definite CT abnormality. No other osseous abnormalities are identified.

Impression

1) Intensely hypermetabolic mass in the right upper lobe which is highly suspicious for pulmonary malignancy and has slightly increased in anatomic size since the prior outside CT scan of 6/2/04. There is no evidence for regional nodal metastases.

2) A small hypermetabolic focus in the left proximal femur subtrochanteric region which is suspicious for osseous metastases. Correlation with MRI is recommended.
Sample Case Report 4

PET-CT Scan Brain

Date of Study: December 6, 2005.

Procedure: Following IV injection of 18-fluoro-2-deoxyglucose (FDG) and a standard uptake period, a non-contrast CT scan followed by a PET scan were acquired of the brain. The non-contrast CT was used for anatomic localization and photon attenuation correction of the PET scan.

FDG Dose: 10.3 mCi

Correlative Studies: None

Clinical History: Suspected dementia, assess for Alzheimer’s versus frontotemporal type dementia.

Findings

There is moderately decreased cortical activity in the bilateral parietal, frontal, and temporal lobes with preservation of the occipital and sensorimotor cortex. The left side is affected more than the right and the parietal and temporal lobes appear more affected than the frontal lobes.

Impression

The findings are consistent with a moderately advanced primary dementia process, most likely of Alzheimer’s type.
Sample Case Report 5

PET-CT Brain Scan

Date of Study: 11/7/05

Procedure: Following IV injection of 18-fluoro-2-deoxyglucose (FDG) and a standard uptake period, a non-contrast CT scan followed by a PET scan of the brain. The non-contrast CT was used for anatomic localization and photon attenuation correction of the PET scan.

FDG Dose: 11 mCi

Correlative Studies: Ictal and interictal cerebral SPECT perfusion scan 10/11/05

Clinical History: Refractory seizure disorder. Pre-surgical evaluation.

Findings

There is mild diffusely decreased cortical activity in the right temporal lobe. Normal symmetric metabolic activity in all other cortical regions of the brain. Normal symmetric activity in the basal ganglia, thalami, and cerebellar hemispheres.

Impression

Mild diffuse cortical hypometabolism in the right temporal lobe which is highly suggestive of a seizure focus originating in this region. Of note, right temporal seizure activity is seen on the recent ictal SPECT perfusion scan.
Sample Case Report 6

PET/CT Scan

Date of Exam: 11/24/09.

Procedure: Following IV injection of 18-fluoro-2-deoxyglucose (FDG) and a standard uptake period, a non-contrast CT scan followed by a PET scan were acquired along the length of the body from the base of the skull to mid thighs. The non-contrast CT was used for anatomic localization and photon attenuation correction of the PET scan.

FDG Dose: 12.0 mCi

Correlative Studies: PET/CT scan, 08/11/09.

Clinical History: Non-small-cell lung cancer, status post radiation therapy. This is a restaging exam.

Findings:

Head/Neck: Normal activity in the visualized portions of the lower head and in all regions of the neck.

Chest: There is interval increase in apparent size and in intensity of the previously seen hypermetabolic soft tissue density in the right posterior peribronchial region (centered on axial image #56). The SUV max of this lesion has increased from 5.8 on the prior to 10.0 on the current study. There is interval appearance of moderately hypermetabolic pleural thickening along the posteromedial margin of the pleura at the level of the peribronchial lesion. There is also new mildly hypermetabolic ill-defined opacity in the right suprahilar region (axial image #58) but this has a nonspecific appearance that could represent either interval inflammatory change versus new site of recurrence. There has been interval decrease in size of the previously seen area of consolidation and atelectasis in the posteromedial right upper lobe consistent with resolving postradiation pneumonitis. Normal activity in all other regions of the lungs and in the remainder of the mediastinum and hilar regions. Again seen on CT scan are small nodular opacities in both lungs, which are stable in appearance.

Abdomen/Pelvis: Normal activity in all soft tissue regions.

Skeleton: Decreased marrow activity in the mid-to-upper thoracic spine is consistent with postradiation changes. Normal marrow activity in the remainder of the axial and visualized proximal appendicular skeleton.

Impression:

1. Growing local tumor recurrence in the right posterior peribronchial region with possible spread of tumor involvement along the posteromedial pleural margin at the same level.

2. Probable resolving postradiation inflammatory change in the right upper lobe and in the parenchyma adjacent to the recurrent lesion.
Sample Case Report 7

PET/CT Scan:

Date of Exam:  09/23/09.

Procedure: Following IV injection of 18-fluoro-2-deoxyglucose (FDG) and a standard uptake period, a non-contrast CT scan followed by a PET scan were acquired along the length of the body from the base of the skull to mid thighs. The non-contrast CT was used for anatomic localization and photon attenuation correction of the PET scan.

FDG Dose:  15.5 mCi.

Correlative Studies:  PET/CT scan 02/04/09.

Clinical History: Metastatic colon cancer with rising CEA. This is a restaging exam.

Findings:

Head/Neck: Normal activity in the visualized soft tissue regions of the lower head and all soft tissue regions of the neck. Again seen on CT scan, is a left-sided thyroid goiter with a large hypodense nodule, stable in appearance compared to the prior study.

Chest: Normal activity in all soft tissue regions. Again seen on CT scan, are stable, small, pulmonary nodules with no significant activity in the posterior right upper lobe (axial images #72 and #74) and a stable, CT-visualized ill-defined opacity in the posterior left upper lobe (axial image #74), all with no significant activity.

Abdomen/Pelvis: Prominent, but likely physiologic, bowel activity in the right lower pelvis. Normal activity in all other soft tissue regions of the abdomen and pelvis. Again seen on CT scan, is a small hypodensity in the inferior right hepatic lobe, stable in appearance compared to the prior study. Incidentally noted is a small, hypermetabolic soft tissue density in the subcutaneous tissues of the left buttock (axial image #215), which likely represents an injection granuloma (the patient reports that he does get injections in the buttock).

Skeleton: Again seen are multiple hypermetabolic predominantly sclerotic metastases in the axial skeleton; the largest lesion is in the left iliac bone, and additional lesions seen in the upper and lower thoracic spine, in several left-sided ribs, in the right posterior fourth rib, and in the right sternal body. Many of these lesions appear more intense than on the prior study of 02/04/09, most notably in the left iliac bone (SUV max has increased from 11.7 to 15.9), in the T3 vertebral body (SUV max increased from 3.7 to 8.3), and in the right posterior fourth rib (SUV max increased from 3.4 to 5.4). There also appears to be a new, small, hypermetabolic lesion in the spinous process of T6. There is also likely a small lesion at the edge of the field of view in the left distal third femoral diaphysis (axial image #311), which was not in the imaged field of view on the prior study of 02/04/09. No other new sites of suspected osseous metastasis are identified.

Impression:

1. Multiple sites of active osseous metastases as detailed above, many of which appear more
metabolically active when compared to the prior study of 02/04/09. There are at least two new sites of suspected osseous metastasis in the spinous process of T6 and at the edge of the field of view in the left distal third femoral diaphysis. If clinically indicated, plain radiographs of the left femur could be obtained for further evaluation.

2. No evidence for soft tissue sites of active metastatic disease.