Patient History

This patient is a 53-year-old former smoker who presented with a complaint of back pain. After a period of physical therapy, and continued pain, the patient had an MRI of the spine that showed bony lesions in the T12 and L5 vertebral bodies, suspicious for neoplastic disease.

Subsequently, the patient underwent CT scan of the chest, abdomen, and pelvis, which demonstrated small bilateral pulmonary nodules measuring less than 4 mm in size, subcarinal lymphadenopathy 1.8 cm in size with central necrosis, and an area of hypodensity in the right hepatic lobe measuring 5.3 x 3.5 cm—suspicious for Klatskin tumor, i.e., cholangiocarcinoma occurring at the confluence of the right and left hepatic bile ducts. CT also showed bony destructive changes within the T12 vertebral body. Laboratory tests indicated hyperbilirubinemia. CT-guided biopsy of the hepatic lesion demonstrated moderately well-differentiated cholangiocarcinoma.

Following CT, the patient had two medical oncology consults in a ten-day period. The overall clinical impression was gross jaundice and pruritus, tissue diagnosis of cholangiocarcinoma with likely metastatic disease to liver, mediastinal lymph nodes, and T12 vertebral body. The patient was recommended for biliary stenting procedure, which was performed successfully. A staging 18F-FDG PET/CT was ordered to determine the extent of disease.

18F-FDG PET/CT Findings

The 18F-FDG PET/CT scan demonstrated intense uptake in the posterior aspect of the right lobe of the liver at the site of the known hepatic lesion, consistent with the patient’s diagnosis of cholangiocarcinoma. There was also high FDG uptake along the course of the central biliary tree, related to tumor spread and/or inflammatory changes associated with biliary stent placement.

The 18F-FDG PET/CT also demonstrated intense FDG uptake in right paratracheal and subcarinal lymph nodes, in bone metastases in the T12 and L5 vertebral bodies, and in a paraspinal soft tissue mass at the T12 level.

18F-FDG PET/CT for Staging of Liver Cancer

How Did 18F-FDG PET/CT Help?

A staging 18F-FDG PET/CT study was helpful in confirming the diagnosis of cholangiocarcinoma and in demonstrating the extent of disease. Based on all findings, it was determined that the patient was not a surgical candidate, with chemotherapy of palliative intent recommended as the course of action.

Sainani et al1 and Garcea et al2 have examined the role that 18F-FDG PET/CT can play in the detection and management of cholangiocarcinoma, particularly the value of PET/CT in detection of early cholangiocarcinoma and in preparation for advanced surgical procedures and treatment planning.

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