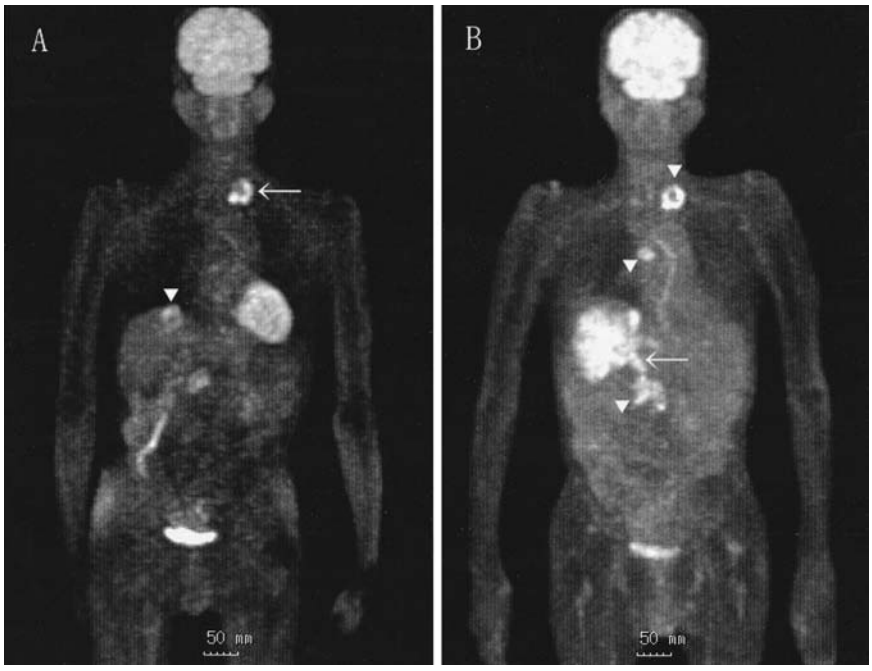

Fig. 1A,B. ^{18}F-fluoro-2-deoxy-D-glucose positron emission tomography (PET). **A** The first PET scan, on March 17, 2004, showed a left subclavian lymph node metastasis (*arrow*) and a recurrent lesion in the liver (*arrowhead*). **B** The second PET scan, on September 10, demonstrated portal vein tumor thrombus extending from diffuse liver lesions (*arrow*) and lymph node metastases (*arrowheads*)

^{18}F-FDG PET for hepatocellular carcinoma presenting with portal vein tumor thrombus

To the Editor: We read with interest the article by Sugiyama et al., in a previous issue of the Journal of Gastroenterology,[1] describing the usefulness of ^{18}F-fluoro-2-deoxy-D-glucose (^{18}F-FDG) positron emission tomography (PET) in the detection of extrahepatic metastases of hepatocellular carcinoma. We recently encountered a patient with hepatocellular carcinoma associated with portal vein tumor thrombus and distant nodal metastases, diagnosed by FDG-PET.

A 62-year-old man was referred to our hospital in 1999 because of hepatitis C-related hepatocellular carcinoma with a paraaortic node metastasis. He underwent radiotherapy to the lymph node and had been treated with repeated transcatheter arterial embolization for the liver lesions successfully since then. In March 2004, a PET scan revealed a distant metastasis in the left subclavian lymph node and a recurrent lesion in the liver (Fig. 1A). He underwent radiotherapy to the lymph node, and radiofrequency ablation of the liver lesion. Subsequently, he was doing well until he suffered from general malaise and was admitted to our hospital in August 2004.

The laboratory data on admission were as follows: albumin, 2.9 g/dl; aspartate aminotransferase, 34 IU/l; total bilirubin, 0.9 mg/dl; prothrombin time, 60%; alpha-fetoprotein, 92 ng/ml; creatinine, 2.06 mg/dl. Abdominal ultrasound and magnetic resonance imaging revealed marked ascites, diffuse lesions in the right lobe of the liver (which may have been recurrence), and a solid lesion in both the intra- and extrahepatic sections of the portal vein (Fig. 2). Because of renal dysfunction, contrast computed tomography was not done. The newly detected lesion in the portal vein was difficult to diagnose. It was thought to be either a tumor thrombus or a blood clot. Doppler ultrasound was not diagnostic and biopsy did not seem indicated. A second PET scan was done and it clearly showed the presence of a recurrent lesion in the liver and its extension through the portal tract (Fig. 1B). It was evident that the intrahepatic lesions had unexpectedly spread within a short time. Without FDG-PET, it might have been impossible to correctly diagnose the lesion in the portal vein. Although the patient was scheduled to be treated with 5-fluorouracil and interferon-alpha combination chemotherapy, his general condition gradually deteriorated, and he died in November 2004.

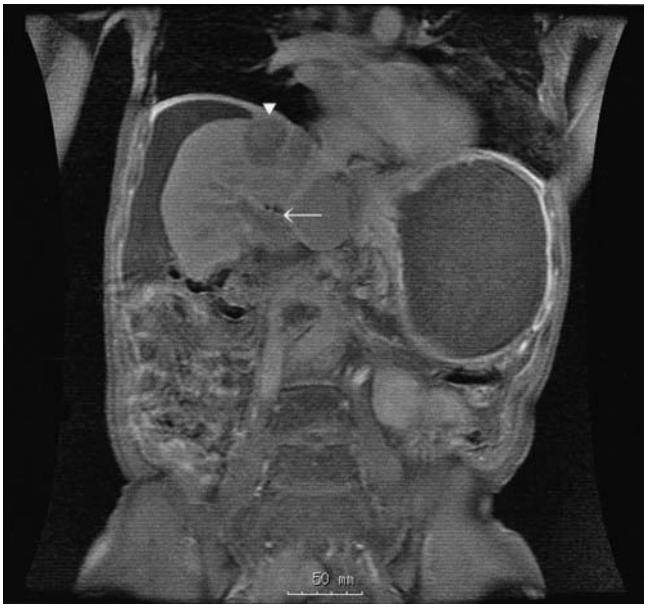

Fig. 2. T1-weighted magnetic resonance imaging, on September 2, demonstrated a solid lesion in the portal vein (*arrow*) and the previously treated lesion in the liver (*arrowhead*)

Although FDG-PET has been widely used for the diagnosis of metastatic liver tumors, its usefulness in hepatocellular carcinoma has seemed to be limited because of low sensitivity, especially when tumors are well-differentiated.[2,3] However, FDG-PET was reported to be helpful for the detection of extrahepatic metastasis[1] and for monitoring after treatment[4] of hepatocellular carcinoma. In our patient, FDG-PET was done twice, and distant lymph node metastases and the portal vein tumor thrombus came clearly into view, which made this method useful for treatment planning. Therefore, clinicians should give more consideration to FDG-PET when extrahepatic metastases are suspected during the course of hepatocellular carcinoma.

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