The use of \(^{18}\text{F}\) fluoro-2-deoxyglucose positron emission tomography and thallium-201 single-photon emission computerized tomography (Tl-201-SPECT) are helpful in characterizing the dignity of space-occupying lesions in patients in whom brain masses are otherwise not clearly demonstrated. These neuroimaging procedures may help to overcome the limited specificity of magnetic resonance imaging or computerized tomography (CT) especially in patients who have previously undergone radiotherapy. Nevertheless, in rare cases cerebral radio-necroses can also be seen to mimic malignancy on scintigraphic imaging studies in which various radiopharmaceuticals and combinations thereof are used.

More than 20 years after undergoing total resection and postoperative radiotherapy for the treatment of malignant melanoma of the forehead, this 76-year-old patient presented with evidence of high glucose metabolism, high thallium uptake, and slow thallium washout found in a space-occupying lesion of the left frontal cranium (Figs. 1 and 2). Examination of the scintigraphic images and uptake indices demonstrated characteristics that were typical of malignancy due to recurrent metastasis or radiation-induced glioma. Therefore, we performed open surgery for the complete resection of the lesion. Histopathological examination revealed radionecrosis without evidence for malignancy, and the postoperative CT, neurological examination, and clinical follow-up evaluation were unremarkable.

Thus false-positive findings on \(^{18}\text{F}\) fluoro-2-deoxyglucose positron emission tomography and TI-201-SPECT can be demonstrated in patients with a history of radiotherapy even when this therapy has been undertaken more than two decades before and when clinical, morphological, and scintigraphic data are indicative of malignancy.

References