

Flare phenomenon in O-(2-[¹⁸F]-Fluoroethyl)-L-Tyrosine PET after resection of gliomas

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Reply by the authors:

We thank Dr. Nabavizadeh and colleagues for bringing up this important aspect. Indeed, it cannot be excluded that postoperative ischemia has contributed to the observed flare phenomenon. On the other hand, we would like to emphasize that increased amino acid uptake in subacute ischemia is generally mild and in the range of a tumor-to-brain ratio of two or less. In contrast, some patients with flare phenomenon in our study had maximum tumor-to-brain ratios of O-(2-[¹⁸F]-fluoroethyl)-L-tyrosine (¹⁸F-FET) uptake of up to five or above, which has not been reported in acute and subacute ischemia. According to the authors' suggestion to exclude ischemia in areas with flare phenomenon, we identified one patient in our database with a flare phenomenon in postoperative ¹⁸F-FET positron emission tomography (PET) who simultaneously underwent magnetic resonance diffusion-weighted imaging (DWI) (Patient No. 36, Figure 1). However, the typical signs of ischemia, i.e., a high signal intensity on DWI associated with low signal intensity on apparent diffusion coefficient (ADC) maps could not be identified in the corresponding area showing the flare phenomenon in postoperative ¹⁸F-FET PET. Thus, DWI in this patient with a flare phenomenon does not support the "ischemia hypothesis". Nevertheless, this important aspect should be considered and further investigated in future studies.

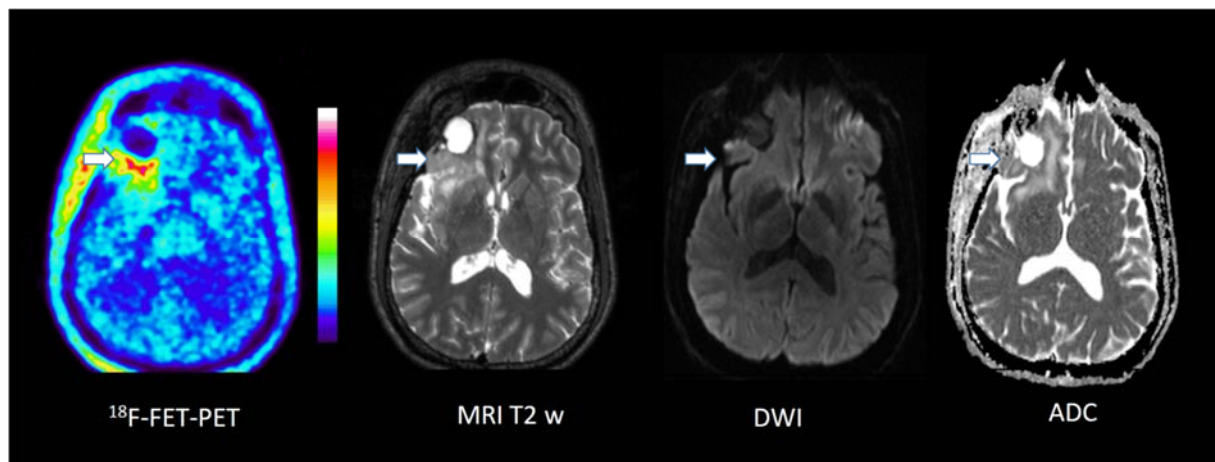


Figure 1. Brain scans of a patient 20 days after resection of a recurrent, right frontal oligodendroglioma WHO ° II. ¹⁸F-FET-PET shows increased uptake at the posterior border of the resection cavity (white arrow) but no signs of ischemia, i.e., a high signal intensity on DWI associated with low signal intensity on the ADC map.