European Journal of Nuclear Medicine and Molecular Imaging (2021) 48:4103–4104
https://doi.org/10.1007/s00259-021-05382-4

IMAGE OF THE MONTH

Intense [^{68}Ga]Ga-FAPI-04 uptake in solitary fibrous tumor/hemangiopericytoma of the central nervous system

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Received: 12 March 2021 / Accepted: 25 April 2021 / Published online: 25 May 2021

A 23-year-old woman presented with morning dizziness for 10 days. Brain MRI (a-d, arrow) revealed a solid and cystic mass in the right frontal lobe without peritumoral edema. The mass was obvious enhanced after contrast-enhancement. The patient then underwent [^{18}F]FDG PET/CT for further differentiation of the brain mass and was included in a clinical trial of [^{68}Ga]Ga-FAPI (NCT04499365). Written informed consent was obtained from the patient. In [^{18}F]FDG PET/CT (e-f, arrow), the right frontal mass was hypometabolic (SUV_{max} 1.6), suggesting a low-grade tumor. However the mass showed significantly intense uptake of [^{68}Ga]Ga-FAPI (SUV_{max} 30.9) (g-h, arrow). The patient then underwent surgical resection of the tumor, and the pathologic diagnosis was solitary fibrous tumor (SFT) /hemangiopericytoma (HPC) (WHO grade II). Hematoxylin-eosin staining (i) showed that the lesion was composed of spindle cells. Immunohistochemistry (IHC) revealed positivity for STAT6(j). FAP-staining revealed prominent positive staining of tumor stromal cells (k).

[^{68}Ga]Ga-FAPI is a novel PET agent developed for solid tumor that specifically targets fibroblast activation protein overexpressed in cancer-associated fibroblasts [1]. SFT/HPC is a rare fibroblastic mesenchymal neoplasm, and SFT/HPC of central nervous system (CNS) usually arises from the cranial or spinal dura [2]. Recent cases [3, 4] reported intense [^{68}Ga]Ga-FAPI uptake in SFTs arising from retroperitoneal region and lung and confirmed the high expression of FAP in pulmonary SFT by IHC. In this case, the CNS SFT/HPC also showed high uptake of [^{68}Ga]Ga-FAPI, and IHC confirmed high expression of FAP in tumor stromal cells. Therefore, [^{68}Ga]Ga-FAPI may be a promising tracer in detecting SFT/HPC.

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This article is part of the Topical Collection on Oncology - Brain.

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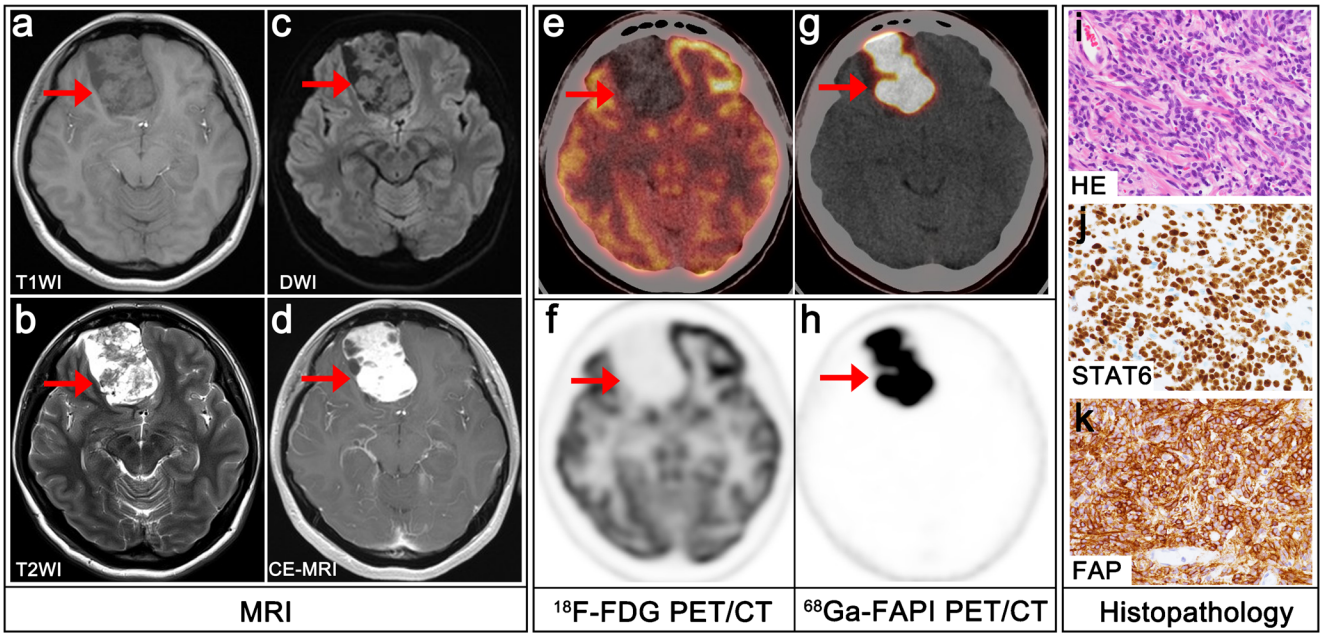

Funding This study was funded in part by the startup fund for scientific research of Fujian Medical University (2017XQ1078). The National Natural Science Foundation of China (NSFC) 81971651. Natural Science Foundation of Fujian 2019 J01454 and 2020 J05249. Fujian Provincial Health Commission Science and Technology and Programme 2020GGA045.

Declarations

The study was approved by the institutional review board of our hospital, and written informed consent for publication of this report was obtained from the patient.

Conflict of interest The authors declare that they have no conflict of interest.

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