

# Bilateral renal metastasis from intracranial solitary fibrous tumor/hemangiopericytoma revealed on $^{18}\text{F}$ -FDG PET/CT and contrast-enhanced CT

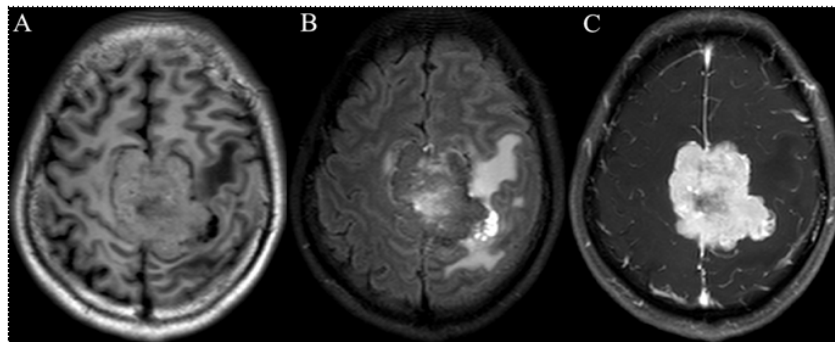
## Abstract

Bilateral renal metastasis for solitary fibrous tumor/hemangiopericytoma (SFT/HPC) is very rare. Herein, we reported a 40-year-old man whose postoperative diagnosis was intracranial SFT/HPC. Fluorine-18-fluorodeoxyglucose positron emission tomography/computed tomography ( $^{18}\text{F}$ -FDG PET/CT) and contrast-enhanced CT showed homogeneous enhancement of the bilateral renal mass with mild  $^{18}\text{F}$ -FDG uptake of maximum standardized uptake value (SUVmax) of 3.17. Subsequently, this patient underwent surgery treatment and pathology supported the metastasis of SFT/HPC from central nervous system (CNS). Our case hints us that contrast-enhanced  $^{18}\text{F}$ -FDG PET/CT might be a better one-stop diagnostic procedure for extracranial metastases in SFT/HPC patients, and bilateral renal mass with a history of SFT/HPC should consider the possibility of metastasis.

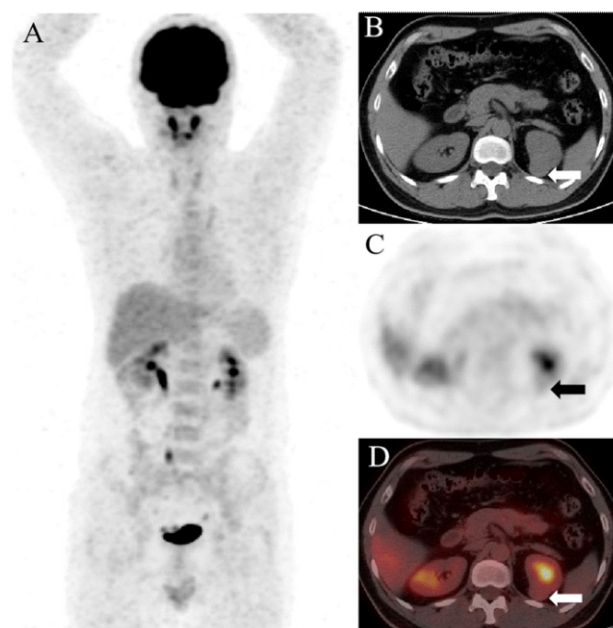
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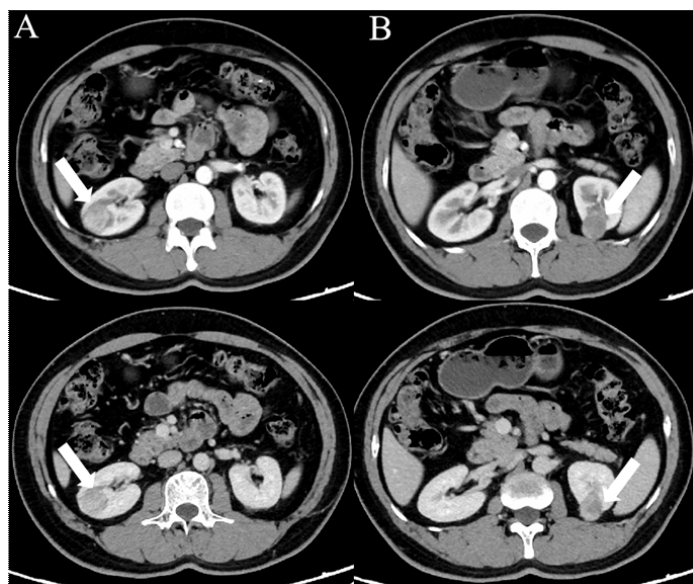
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**Figure 1.** A 40-year-old man came to our hospital for complaining of weakness of right lower limb for one month. Head magnetic resonance imaging (MRI) examination showed a mass with the size of 63x60mm in the frontoparietal area, which represented as iso-signal on T1WI (A) and high signal with surrounding edema on T2WI (B). This lesion had obvious homogeneous enhancement after injection of contrast (C). This patient underwent surgical resection. The postoperative pathology supported the solitary fibrous tumor/hemangiopericytoma (SFT/HPC) with positive STAT6, EMA and CD99 detected by immunohistochemical analysis.



**Figure 2.** For SFT/HPC from CNS have a tendency of local recurrence and distant metastasis [1], this patient underwent  $^{18}\text{F}$ -FDG PET/CT to detect possible metastatic lesions, maximum intensity projection (MIP) image (A) had no abnormal  $^{18}\text{F}$ -FDG uptake except in thyroid, which was considered as inflammatory. However, the axial abdomen CT (B), PET (C), fusion image (D) showed a mass with the size of 31x26mm in left renal, which had mild  $^{18}\text{F}$ -FDG uptake with SUVmax of 3.17 (arrow). The metastasis or primary renal tumor was suspected.



**Figure 3.** To further evaluate the nature of left renal mass, contrast-enhanced abdomen CT was performed. The result indicated that another mass in right renal (A) and the mass in left renal (B) had similar homogeneous enhancement. Finally, this patient underwent surgery treatment. The pathology was malignant solitary tumor, which supported the metastasis of SFT/HPC from CNS.

Solitary fibrous tumor/hemangiopericytoma (SFT/HPC) are very rare mesenchymal tumors arising from various organs across the body, including pleura, bone, soft tissue [2]. Central nervous system is especially rare primary site of SFT/HPC, accounting for less than 1% of CNS tumors [3]. A systematic literature review by Ratneswaren et al. (2018) have been reported that overall incidence of extra-cranial metastasis for SFT/HPC in CNS was 28% and most common metastatic sites were bone, pulmonary, pleura and liver [4]. Decreased WNT5A expression and increased MMP9 expression may prompt tumor cells to metastasize extracranially for SFT/HPC [5]. Bilateral renal metastasis for SFT/HPC is very rare [6]. In our case, postoperative  $^{18}\text{F}$ -FDG PET/CT and enhanced-contrast CT showed homogeneous enhancement of the mass with mild  $^{18}\text{F}$ -FDG uptake. Fluorine-18-FDG PET/CT may be conducive to detect accident metastasis lesions like our case though it may have insidious pitfalls of pre-operative diagnostic work-up in the differential diagnosis between benign and malignant SFT [7]. Our case hints us that contrast-enhanced  $^{18}\text{F}$ -FDG PET/CT might be a better one-stop diagnostic procedure for extra-cranial metastases in SFT/HPC patients [8], and bilateral renal mass with a history of SFT/HPC should consider the possibility of metastasis.

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