



Renal Infarction Associated With Extra-Adrenal Pheochromocytoma

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Pheochromocytomas have been described to be associated with renal infarction in a few sporadic cases. The underlying pathophysiologic mechanisms are catecholamine-induced vasospasm and direct compression or invasion of the tumor on renal artery or its branches. However, renal infarction caused by extra-adrenal pheochromocytoma is rarely reported. We describe an unusual case of benign extra-adrenal pheochromocytoma complicated with left renal infarction by severe vasospasm. *UROLOGY* 128: e1–e2, 2019. © 2019 Elsevier Inc.

A 43-year-old male presented with sudden onset of left abdominal flank pain without gross hematuria and blood pressure was 160/134 mmHg. Computerized Tomography (CT) showed left renal

infarction and an extra-adrenal mass. (Fig. 1A) After administration of phenoxybenzamine to lower blood pressure, single photon emission computed tomography (SPECT) was performed. (Fig. 1B) Mismatched images of

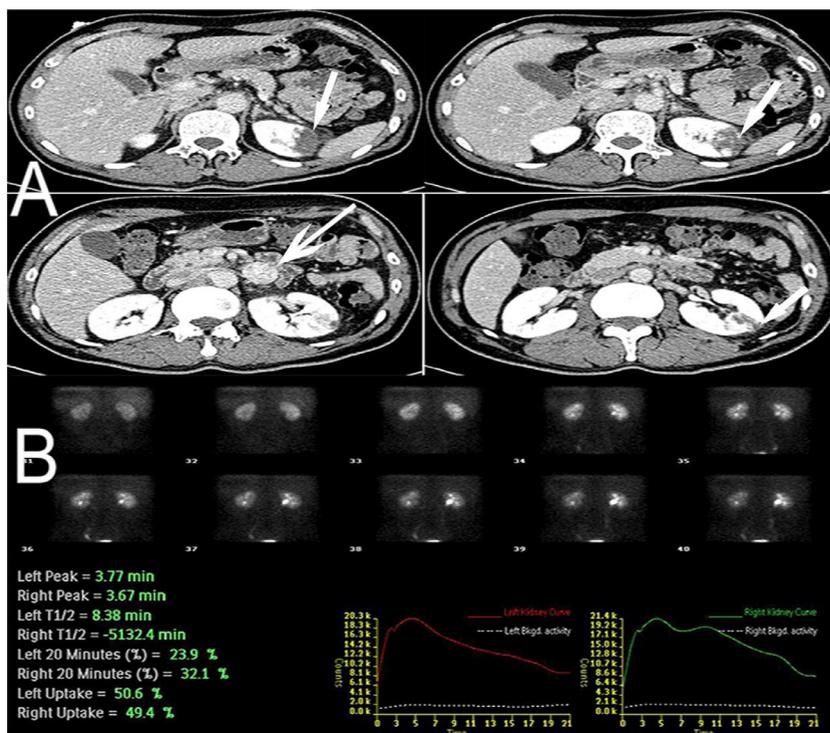


Figure 1. (A) Computerized Tomography (CT) showed sharply-demarcated areas of focal decreased enhancement in the left kidney and a heterogeneous mass in front of the left renal vein. (B) Single Photon Emission-Computed Tomography (SPECT) image revealed both kidneys reached the peak of perfusion in renal artery perfusion stage and the tracer is evenly distributed. No absence of tracer localization in the infarct-related areas.

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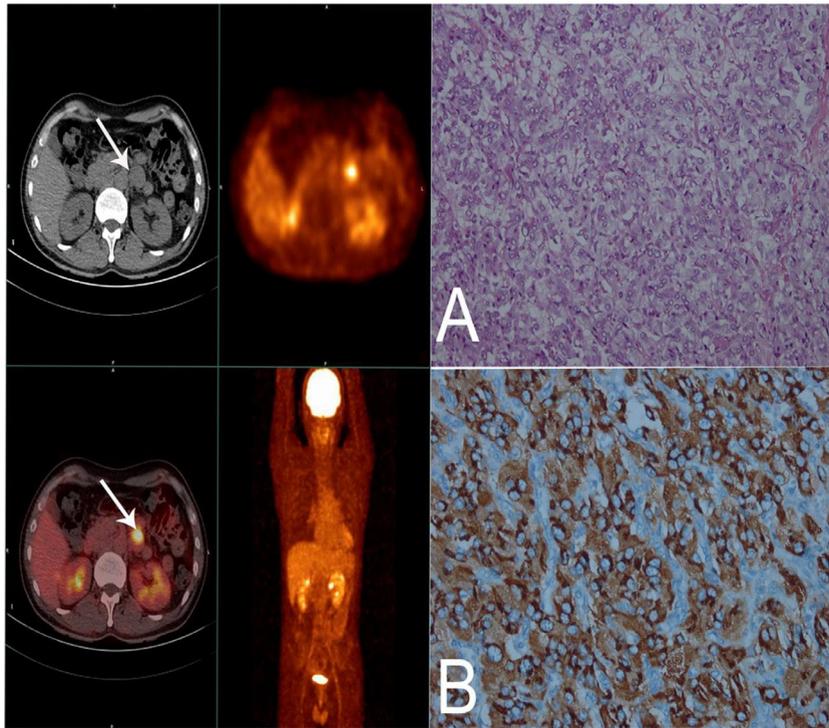


Figure 2. Fluorine-¹⁸Fluorodeoxyglucose positron emission tomography (18F-FDG-PET) showed strong accumulation of the tracer in the extra-adrenal mass. Microscope and immunohistochemical findings. The tumor was composed of epithelioid to spindle-shaped cells (A: H&E, × 200). The tumor cells were immunoreactive for chromogranin A (B, × 400), synaptophysin, and CD56.

renal infarction between CT and SPECT were noticed. Endocrinological evaluation revealed elevated plasma norepinephrine level of 2710 ng/L (normal range, 272-559) after 3 days of onset. ¹⁸F-FDG -PET scan indicated the extra-adrenal mass with hypermetabolic character. (Fig. 2) Surgical removal of the mass and immunohistochemical analysis confirmed it was a benign extra-adrenal pheochromocytoma. (Fig. 2)

In our case, the underlying mechanism of renal infarction is severe vasospasm induced by high systemic blood levels of norepinephrine¹ and can be reversed by α -adrenoceptor blockers.² The present case demonstrates 2 points. First, a high index of suspicion for reversible vasospasm is critical when mismatched images of renal infarction between CT and SPECT are present in the setting of extra-adrenal pheochromocytoma which usually produce preponderantly norepinephrine,³ with its marked vasoconstrictor

effect. Second, renal infarction could be another manifestation in complications of extra-adrenal pheochromocytoma and an underlying pheochromocytoma should be considered in patients with renal infarction of unknown cause.

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