INTERNAL MEDICINE

□ PICTURES IN CLINICAL MEDICINE □

Utility of Follow-Up of ^{131}I-MIBG Scintigraphy to Screen Pheochromocytoma

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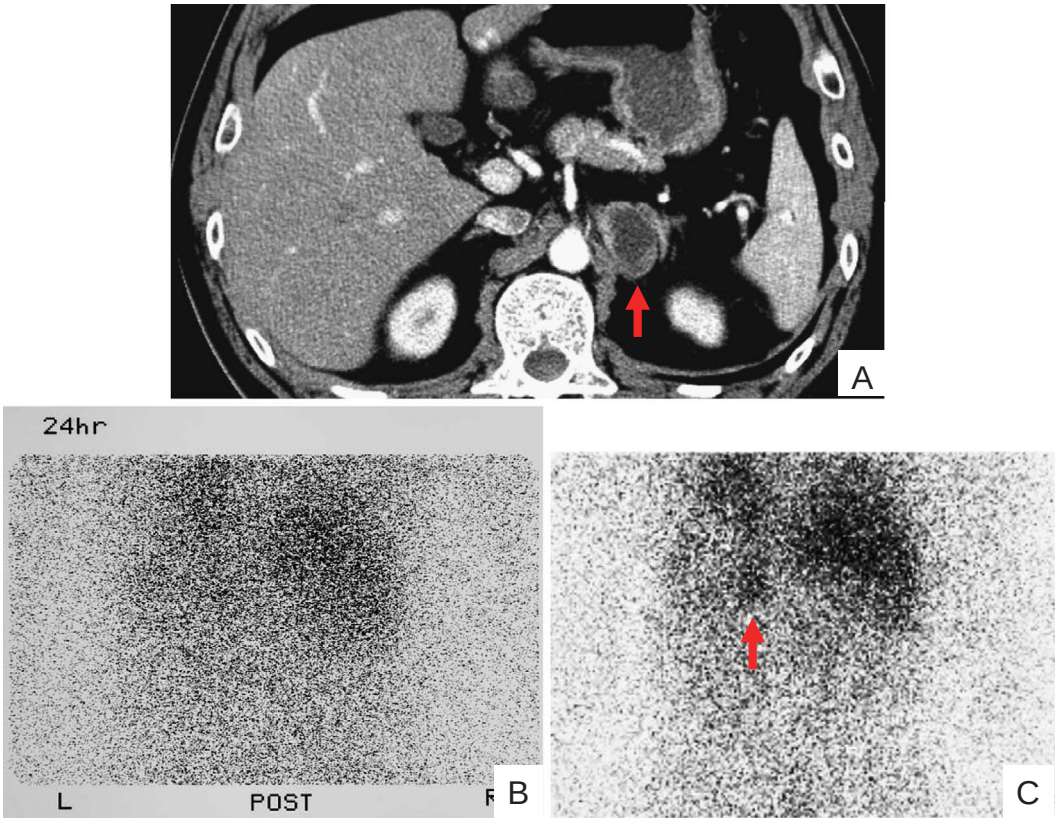

Picture 1. **Abdominal contrast enhanced CT incidentally detected a heterogenous mass on the left adrenal lesion in December 2001 (A, arrow). ^{131}I-MIBG scintigraphy in February 2002 did not show any abnormal uptake (B), but ^{131}I-MIBG scintigraphy in October 2006 showed increased uptake in the left adrenal lesion (C, arrow).**

In December 2001, a 49-year-old man presented for evaluation of a gallstone. Abdominal contrast-enhanced computed tomography (CT) incidentally revealed a heterogenous mass measuring 36 mm in diameter in the left adrenal lesion, which was suspected of being pheochromocytoma (Picture 1A, arrow). Serum adrenaline, noradrenaline,

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dopamine, plasma renin activity (PRA), plasma aldosterone concentration (PAC) and cortisol were 0.031 ng/mL, 0.545 ng/mL, <0.010 ng/mL, 2.27 ng/mL/hour, 109 pg/mL and 6.0 μg/dL, respectively. Blood pressure was 102/60 mmHg and ^{131}I-MIBG scintigraphy performed in February 2002 did not show any abnormal uptake in the left adrenal lesion (Picture 1B).

He consulted our hospital for follow-up of the adrenal mass in October 2006, and serum adrenaline, noradrenaline, dopamine, PRA, PAC, ACTH and cortisol were 0.082 ng/mL, 0.704 ng/mL, <0.010 ng/mL, 0.8 ng/mL/hour, 126 pg/mL, 46.1 pg/mL and 18.3 μg/dL, respectively. Blood pressure was 117/61 mmHg and the tumor size had not changed (35 mm), but ^{131}I-MIBG scintigraphy showed marked accumulation in the left adrenal lesion (Picture 1C, arrow). We diagnosed the tumor as pheochromocytoma, and laparoscopic adrenalectomy was performed in November 2006. The tumor was separated from the adrenal gland, and showed broad necrosis inside. Immunohistochemically, the surgical specimen was positive for chromogranin A staining as a specific marker and the pathological diagnosis was paraganglioma.

It has been reported that ^{131}I-MIBG scintigraphy in a diagnosis of pheochromocytoma has a specificity of 100% and a sensitivity of 85.7% (1), while false negative results are found in about 10% cases. Pheochromocytoma containing minimal solid tissue due to extensive necrosis may predict a negative MIBG scintigraphy result. However, Bhatia et al reported that tumor necrosis or hemorrhage was not consistently related to MIBG uptake (2). During follow-up of the present patient, the tumor size had not changed and he did not develop hypertension. There was no aberrant increase in catecholamine levels, but reexamination of ^{131}I-MIBG scintigraphy showed abnormal uptake in the left adrenal lesion. The patient had not taken any medications that would have inhibited uptake of ^{131}I-MIBG. It is unknown why the tumor showed abnormal uptake on follow-up ^{131}I-MIBG scintigraphy. It is important to perform reexamination of ^{131}I-MIBG scintigraphy for the screening of pheochromocytoma, even if ^{131}I-MIBG scintigraphy does not show any abnormal uptake.

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