LETTER TO THE EDITOR

Hypertension due to juxtaglomerular cell tumor of the kidney

Dear Editor

A juxtaglomerular cell tumor (JGCT) is a very rare cause of hypertension that was first described by Robertson et al [1]. Patients have hypertension, hyperaldosteronism, and hypokalemia secondary to tumor renin secretion [2], and the hypertension usually returns to normal immediately or gradually after tumor removal. Here, we report a case of JGCT of the kidney with serious cardiovascular complications that was misdiagnosed for nearly 10 years.

A 62-year-old female was admitted to the Department of Cardiovascular Surgery at our hospital with severe hypertension, hypertensive heart disease, and pulmonary infection. She had persistent high blood pressure (BP; 180/110 mmHg, grade III hypertension) with a personal history of elevated BP for almost 10 years. She took over-the-counter captopril following diagnosis of hypertension 10 years ago, but she was unable to detail drug dosage or how well it controlled her BP. Doppler echocardiography showed left atrium and ventricle hypertrophy, and the cardiac function was New York Heart Association class II. Abdominal ultrasound showed 4.7 cm × 3.6 cm mixed solid and cystic lesions in the right kidney. Contrast-enhanced computed tomography showed a solitary 2.8-cm diameter low-to-moderate contrast-enhancement mass near to the renal hilum of the right kidney (Figure 1A). Laboratory tests showed serum potassium levels at 3.4 mmol/L.

After controlling the BP, the patient was transferred to our department, where she received a retroperitoneal laparoscopic radical nephrectomy. Histological examination of the tumor showed that it consisted of sheets of uniform round-to-polygonal cells, which had centrally located nuclei and slightly eosinophilic cytoplasm (Figure 2B). Immunohistochemical study revealed diffuse staining with CD34, vimentin, smooth-muscle actin (focally), actin (sporadic), and Ki67 (5%; Figure 1C). Cells were negative for all other antibodies tested, including CK7, RCC, CD10, WT-1, CD57, desmin, CK, LcA, and HMB45. Histological confirmation was essential to distinguish JGCT from other kidney carcinomas. For JGCT, immunohistochemical stains for renin, actin, vimentin, and CD34 are

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usually positive [2]. After surgery, the BP normalized within 18 months (BP < 140 × 90mmHg) without any anti-hypertension medications, and plasma renin activity, aldosterone, and serum potassium were within normal ranges. We confirmed that the hypertension was caused by JGCT.

JGCT is a rare, benign, renal neoplasm causing renin-mediated hypertension [2] that originates from modified smooth muscle cells from the afferent arteriole of the juxtaglomerular apparatus [3]. Hypertension due to a renin-secreting JGCT is mainly seen in adolescents or young adults and is twice as common in women as men. Most patients have very high BP, with 17% reporting retinopathic malignant-phase hypertension [4]. Our patient had experienced headaches and dizziness over a 10-year history of hypertension, which was also misdiagnosed during this period.

Here, we reported a case of JGCT of the kidney with serious cardiovascular complications due to late diagnosis. JGCT of the kidney should be considered in patients with hypertension and renal tumors. We must also stay alert to this disease when hypertension is diagnosed. Moreover, when curative treatments are unavailable, early recognition and management may prevent target-organ damage, reduce socioeconomic burden, and improve quality of life [5].

References


