A 40-year-old male with chronic hypertension since his teens presented to the emergency department following a motor vehicle collision. Computed tomography scan demonstrated an incidental 1.8-cm renal mass. Partial nephrectomy revealed a vascular tumor with predominantly monomorphic epithelioid cells arranged in sheets and trabeculae with foci of nuclear pleomorphism. Tumor cells were positive for vimentin, CD34, and c-KIT. Juxtaglomerular cell tumor is a rare, benign neoplasm typically found in young adults. Pleomorphism is uncommon and, in combination with older age at diagnosis, can lead to an inaccurate malignant diagnosis. Immunohistochemistry and clinical history helps in correctly diagnosing this benign entity.

Figure 1. Axial view of the abdomen showing a 1.8-cm enhancing mass (arrow) in the interpolar region of the right kidney, abutting the renal pelvis.

Juxtaglomerular cell tumor is an extremely rare, benign, renal neoplasm that causes hypertension, hyperaldosteronism, and hypokalemia secondary to renin secretion. Unlike our case, it is typically found in young adults. The differential diagnosis includes renal cell carcinoma, Wilms’ tumor, hemangiopericytoma, solitary fibrous tumor, and glomus tumor. Pleomorphism is a rare finding and, in combination with an older age at diagnosis, can lead to an inaccurate malignant diagnosis. Immunohistochemical stains and clinical history are helpful in correctly diagnosing this benign entity.
Figure 2. Histology of juxtaglomerular cell tumor (JCT). (A) Low-power view of tumor cells arranged in sheets and trabeculae. The tumor is characterized by (B) round to polygonal cells within a network of delicate vessels and larger thick-walled vessels. (C) High-power view shows epithelioid cells with granular cytoplasm, uniform vesicular nuclei, evenly distributed chromatin, and small nucleoli. (D) Scattered foci of nuclear pleomorphism and cytologic atypia were also present.

Figure 3. Immunohistochemical stains for juxtaglomerular cell tumor (JCT). Tumor cells showed positive staining for vimentin (A), CD34 (B), and c-KIT (C). CD31 highlighted delicate vascular channels within the tumor (D).
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