Letter to the Editor

Dear Sir,

It was with great interest that we read the paper titled *Adrenal cortical oncocytoma mimicking pheochromocytoma* by Kiriakopoulos A. et al published in the first issue of 2011 of the Journal.[1] A few months later, we were puzzled by a very similar case. A 64-year old female patient with a history of 40 years of smoking, hypertension and diabetes mellitus presented with back pain radiating to her left shoulder and systolic blood pressure of 190 mm Hg. CT scan of the chest and abdomen was performed which revealed aortic dissection from the left subclavian artery to the right renal artery. A large mass arising from the left adrenal gland was also observed measuring 5.7 x 4.9 cm, while the right adrenal gland was normal. Endocrine work-up revealed elevated levels of normetanephrines on 24 hr urine (744 ug/24 hr, the upper normal level being 444 ug/24 hr). Blood normetanephrines levels were elevated at 1.8 nmol/L (normal up to 0.90 nmol/L), while cortisol, ACTH, TSH, free T4 and aldosterone levels were normal. It should be noted here that pheochromocytoma is classically associated with over 2-fold elevation of metanephrines. However, we thought that the diagnosis of pheochromcytoma was still possible even with these mildly elevated levels. Ultrasound of her thyroid showed multiple nodules, the largest measuring about 1.2 cm. Several of the nodules had characteristics of colloid cysts. After appropriate treatment with oral phenoxybenzamine, left laparoscopic adrenalectomy was conducted. The patient had an unremarkable recovery and was discharged on the fourth postoperative day. His blood pressure levels were normal but still controlled by medication.

The surgical specimen weighed 61.9 grams and consisted of multiple fragments aggregating to 6.3 x 5.5 x 2.0 cm yellow/orange adrenal gland with a few brown areas surrounded by a thin capsule/pseudocapsule. On H&E sections, normal adrenal cortex was seen in areas large enough to raise suspicion of hyperplasia or neoplasia. The specimen also included a well circumscribed, partly encapsulated nodule, aggregating to 1 cm and composed of large oncocytic cells with round nuclei, occasional binucleation and prominent nucleoli (Figer 1A, B). No prominent vascular network was observable nor were mitoses, necroses or capsular/vascular invasion detected. Immunohistochemical stains were performed with automatic immunostainer (VENTANA Medical Systems, Tucson, AZ). The oncocytic nodular cells were diffusely positive for synaptophysin (Figure 1C) and focally for Melan A and inhibin, but negative for pankeratin AE1/AE3, CAM5.2, calretinin, chromogranin (Figure 1D) and S-100. The immunophenotype was similar to that of the adjacent adrenal cortex, except for synaptophysin which was negative in the latter. The morphology and immunophenotype were consistent with an adrenal cortical adenoma with a predominant oncocytic nodule.

In conclusion, as pointed out by the authors, adrenal tumors can present with clinical features and signs unique to their specific hormonal hypersecretion, while, in a small number of cases, the pre-operative clinical picture may be in conflict with the pathologic features of the tumor in the surgical specimens. Here we present such a case, where the main clinical impression of hypertension, aortic dissection and adrenal mass with elevated blood and urine catecholamines

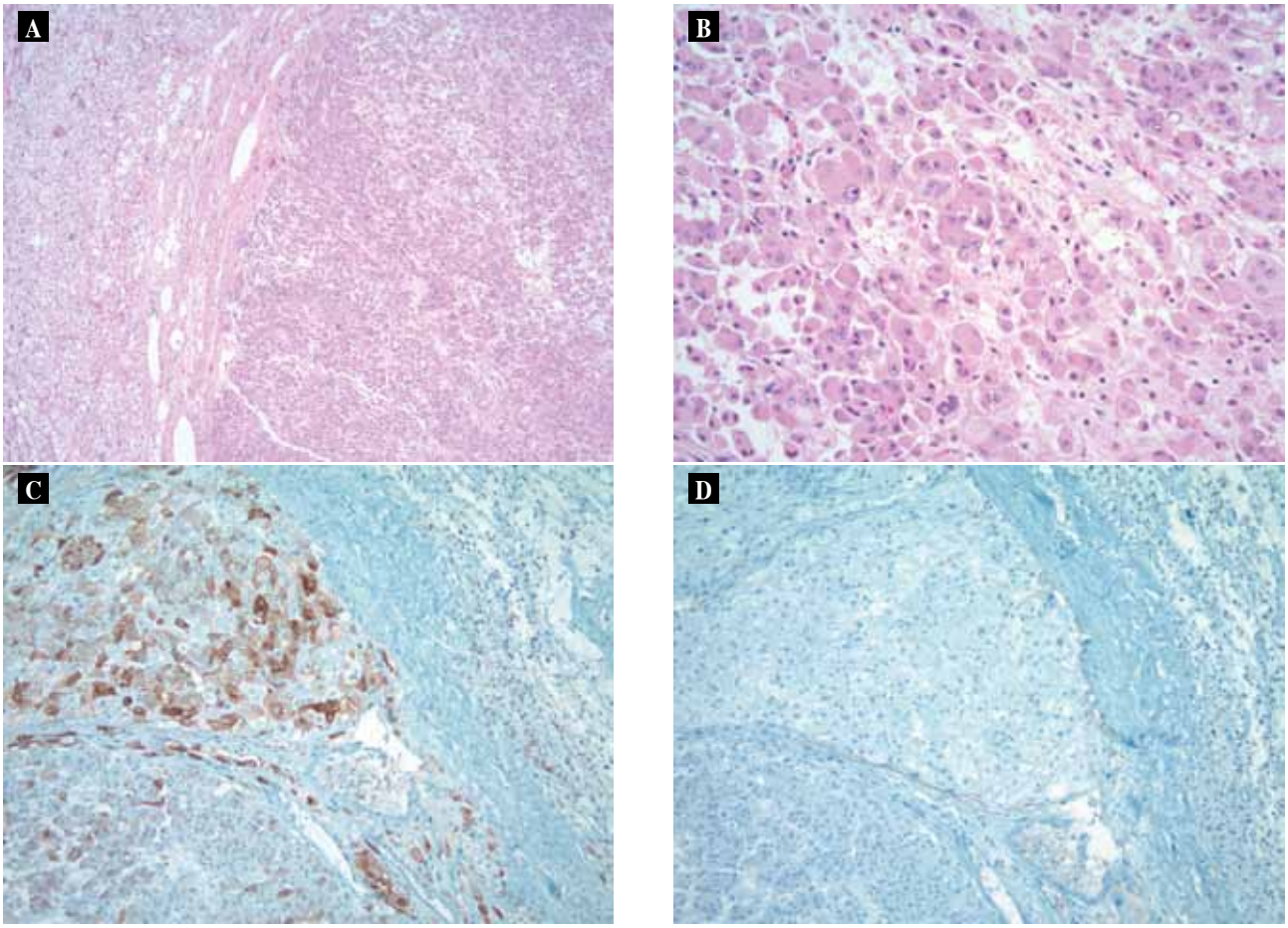

Figure 1A: Low power view of oncocytic nodule within enlarged adrenal cortical neoplasm. H&E 40 X. **1B:** High power view of oncocytic cells with large nuclei, prominent nucleoli and occasional multinucleated cells. H&E 200X. **1C:** Immunostain for synaptophysin showing positivity in the oncocytic cells, while the adjacent adrenal cortical adenoma is negative. **1D:** Negative stain for chromogranin.

pointed to a pheochromocytoma; however, the tumor proved to be an adrenal cortical adenoma with an oncocytic nodule, similarly to the author's case.

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REFERENCES:

1. Kiriakopoulos A, Papaioannou D, Linos D, 2011 Adrenal cortical oncocytoma mimicking pheochromocytoma. Hormones (Athens) 10: 76-79.