

## Case Report on Clinical Vignette

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### Introduction

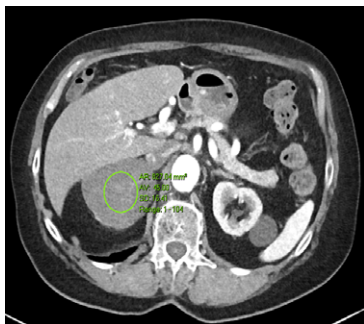
Incidental findings of adrenal masses are increasingly found with the use of thoracic and abdominal imaging studies. It is standard practice to determine if these masses are hormonally active or nonfunctional, malignant or benign. Surgical resection is usually recommended for masses larger than 6 cm in diameter for definitive diagnosis or for functional masses [1]. We report a case of adrenal ganglioneuroma that was incidentally found during a surveillance imaging study.

### Case Presentation

A 79 year old female presented to the endocrine clinic for evaluation of an adrenal incidentaloma that was found during a surveillance imaging study for a known stable aortic aneurysm. Review of systems was positive for intentional weight loss of 30 lbs in the past year; otherwise patient was asymptomatic. She reported no history of headaches, palpitations, flushing, abdominal pain, change in bowel habit or fluctuation of blood pressure. Medical history was notable for non-toxic multinodular goiter, acoustic neuroma, and stable fusiform type B aortic dissection. Vital signs on presentation: blood pressure 145/77 mm Hg, heart rate 81 beats per minute, weight 162 lbs. On physical examination, neck was supple, no goiter, buffalo hump or supraclavicular fat pad. Abdomen was benign; no palpable mass or abdominal purple striae. Laboratory studies: plasma aldosterone 3.7 (ref 0.0-30 ng/d), plasma renin 1.23 (1.31-3.95 ng/mL/hr), DHEA 45 (102-1185 ng/dL), DHEAS 29 (0-90 mcg/dL), plasma metanephrines <10 (0-82 pg/mL). A 1 mg dexamethasone suppression test was normal. Computed tomography (CT) scan of the abdomen/pelvis with contrast showed a large 6.0x6.5 cm right adrenal heterogeneous mass with enhanced attenuation at 45 Hounsfield units (Figure 1). Patient underwent resection of the mass with pathology report revealed evidence of ganglion cells, spindle cells and nerve fibers (Figure 2), consistent with an adrenal ganglioneuroma.

### Discussion

This patient's CT scan revealed a large adrenal heterogeneous mass with a Hounsfield more than 10 units. Biochemical testings

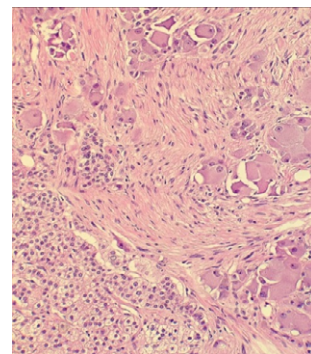


**Figure 1:** Computed tomography scan of the abdomen/pelvis with contrast showed a large 6.0x6.5 cm right adrenal heterogeneous mass with enhanced attenuation at 45 Hounsfield units.

showed no evidence of pheochromocytoma, hypercortisolism, or hyperaldosteronism. Given the CT findings above, we were originally concerned for possible adrenal carcinoma although biochemical testings were normal. The patient underwent laparoscopic adrenalectomy successfully and pathology revealed a benign ganglioneuroma as seen in Figure 2.

Adrenal ganglioneuroma (AGN) is a rare, benign, differentiated neurogenic tumor that can mimic other adrenal neoplasms. The tumor has no hormonal hypersecretion. CT scan imaging characteristics of AGNs usually help to distinguish them from other adrenal neoplasms which include: (a) low attenuated (<40 Hounsfield units) homogeneous mass in the precontrast phase (b) progressive enhancement on postcontrast phase and delayed images (c) presence of punctuate or discrete calcification in about 50 percent of cases [2-4]. Adrenal adenomas usually have similar morphology to AGN, however they are often smaller in size with characteristic washout of more than 50% contrast on delayed images; whereas adrenocortical carcinomas are typically large (>5 cm), heterogenous on precontrast images with inhomogenous contrast enhancement.

In conclusion, it is crucial to distinguish benign AGN from adrenal carcinoma and pheochromocytoma in patients presenting with a large adrenal mass. The final diagnosis is usually made with surgical intervention. Isolated AGNs do not produce catecholamine and they have CT imaging characteristics as described above. The nature of AGNs is usually benign and has good prognosis.



**Figure 2:** Surgical specimen showed evidence of ganglion cells, spindle cells and nerve fibers, consistent with adrenal ganglioneuroma.

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