MALIGNANT HYPERTENSION LEADING TO A DIAGNOSIS OF AN ALDOSTERONE AND CORTISOL CO-SECRETING ADRENAL TUMOR

Dereje Desta, MD; Leigh M. Eck, MD; Becky N. Lowry, MD

INTRODUCTION

Only 10 to 15% of adrenal incidentalomas are classified as hyper-functioning. Of functional tumors, the majority are subclinical Cushing's syndromes, followed by pheochromocytomas and aldosterone producing adenomas. Aldosterone and cortisol co-secreting tumors are rare. Current clinical practice guidelines have limited recommendations regarding the evaluation and management of co-secreting adenomas.

CASE PRESENTATION:

An 86 year old female with long standing, resistant hypertension despite a five drug regimen, was transferred for management of hypertensive emergency. Due to notable hypokalemia on presentation, a work up for primary aldosteronism (PA) was pursued with a suggestive screening aldosterone-to-renin ratio of 38. PA was confirmed with an elevated aldosterone level on a salt loaded 24-hour urine collection. Adrenal imaging revealed a right adrenal mass, likely an adrenal adenoma. In light of this finding, screening for Cushing's syndrome and pheochromocytoma was undertaken to complete the hormonal evaluation. Notably, a 24-hour urine free cortisol was elevated at 121µg/24hrs with a subsequent abnormal overnight dexamethasone suppression test confirming a diagnosis of subclinical Cushing's syndrome. This was ACTH independent in etiology confirming an adrenal source. Laparoscopic adrenalectomy was pursued with pathology revealing a 4.2 x 3.1 x 3.0 cm adrenal nodule. The patient did well post-operatively requiring only one blood pressure agent.

Table 1: Endocrine Lab Evaluation

Test	Result	Normal Value
Aldosterone	23	<22 ng/dl
Renin	0.6	2.9-10.8 ng/ml/hr
PAC/PRA	38	<30
24 hr UFC	121	3.5-45 µg/ml/hr
1mg DST	9	< 1.8 µg/dl
24 hr urinary catecholamine and metanephrine	Normal	

UFC : Urinary free cortisol

DST: Dexamethasone suppression test

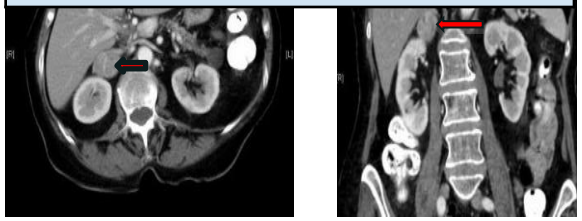

Figure 1: CT scan of the abdomen without intravenous contrast revealing a right adrenal mass, left transverse view and right coronal view

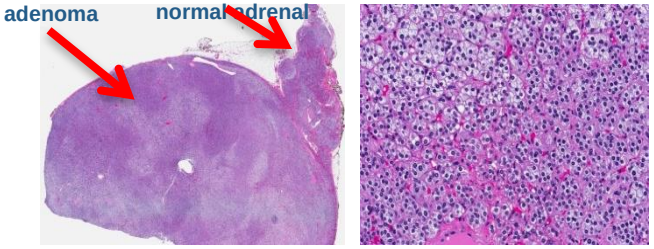

Figure 2: Pathology slides, low power (left) and high power (right), showing the similarity of the adenoma cells to the non-neoplastic cells of the adrenal cortex; the cells are bland, without nuclear pleomorphism.

DISCUSSION

Primary aldosteronism is a common cause of secondary hypertension. Although screening for pheochromocytoma, Cushing's syndrome and PA is recommended for the work up of an adrenal incidentaloma, expert guidelines for the evaluation of PA do not mandate the same comprehensive hormonal evaluation. Had this screening not been undertaken in our patient, a diagnosis of an aldosterone and cortisol co-secreting adrenal tumor would have been missed.

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