Spontaneous Renal Hemorrhage with Idiopathic Resistant Hypertension in a Young Male

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INTRODUCTION

- Primary hyperaldosteronism is an underdiagnosed cause of secondary hypertension characterized by excessive aldosterone production leading to resistant hypertension through overactivation of the Renin-Angiotensin-Aldosterone system (RAAS).
- It is commonly caused by a kidney defect such as an aldosterone secreting adenoma.
- This case report demonstrates a unique presentation of a man with resistant hypertension and perinephric hemorrhage leading to a temporary normalization of his aldosterone levels and blood pressure.

CASE PRESENTATION

A male in his early forties with a past medical history notable for hypertension and chronic kidney disease presented to the emergency department with severe back and abdominal pain. The pain was associated with nausea and vomiting. He denied any recent trauma. Prior outpatient work-up had confirmed primary hyperaldosteronism.

The patient initially presented with a blood pressure of 275/153. Initial blood work was unremarkable. Computed tomography (CT) of the abdomen demonstrated an acute right renal hemorrhage with perinephric hematoma and contrast extravasation suggestive of active bleeding. Urology was consulted and recommended conservative management.

A nicardipine drip was started for hypertensive urgency. Without major intervention, the patient's blood pressure suddenly decreased to 120/90. Post hospitalization, the patient had his blood pressure medication slowly up-titrated over several months. Repeat adrenal vein sampling was performed that was inconclusive.

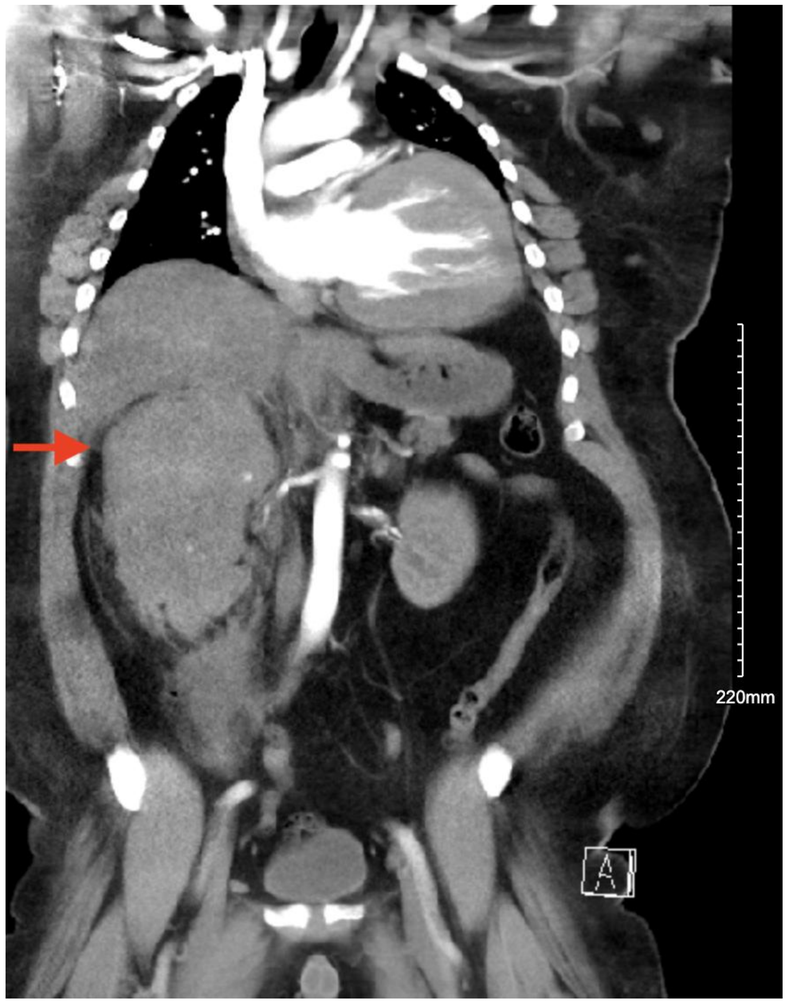

Figure 1: A CT of the chest, abdomen and pelvis with intravenous contrast on admission of the right renal subcapsular hematoma, measuring 10 x 7 x 16 cm with perinephric stranding and perinephric fluid stranding extending into retroperitoneum (red arrow). Active arterial bleeding is noted.

Timing of Sampling	Sample Site	Aldosterone (ng/dl)	Cortisol (ugh/dl)
3 months post admission testing	Inferior Vena Cava	7	18
	Left Adrenal Vein	74	301.4
	Right Adrenal Vein	29	41
5 month post admission testing	Inferior Vena Cava	13	16.7
	Left Adrenal Vein	194	93.7
	Right Adrenal Vein	133	196.7

Table 1: A summary of adrenal vein sampling completed three vs five months after admission. Note the significantly increased levels of aldosterone after five months, correlating with increased blood pressure medication needs.

DISCUSSION

The diagnosis of primary hyperaldosteronism begins with the calculation of the PAC/PRA ratio. A ratio of >20 is considered suspicious for primary hyperaldosteronism.

Once primary aldosteronism is confirmed, the next step in the current clinical guidelines is to confirm lateralization and/or subtyping. This can be done in a variety ways including an adrenal CT scan, however the current gold standard recommendation is currently to use adrenal vein sampling.

In our patient, adrenal vein sampling was performed twice. Selectivity index was positive, confirming the diagnosis of primary aldosteronism. Unfortunately, the lateralization index was below threshold and thus it was not possible to determine if the patient had an aldosterone secreting mass underneath the hematoma. To date, the patient has not had repeat imaging to confirm the presence of the mass.

In conclusion, this is the case of a 40 y.o male presenting with hypertensive emergency in the setting of confirmed primary hyperaldosteronism. We were able to document temporary normalization of his aldosterone levels and blood pressure due to perinephric hemorrhage, which became elevated as this hemorrhage resolved. We suggest that this patient has an underlying aldosterone secreting adenoma which was blunted temporarily due adrenal hemorrhage.