Case Based Urology Learning Program

Resident's Corner: *UROLOGY*

Case Number 8

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A 43-year-old woman is found to have HTN with blood pressures averaging approximately 165/95 that have persisted for a few weeks. She is otherwise healthy. She is not on any medications.

What is the differential diagnosis of HTN in this setting?

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Early onset HTN, prior to the normal age range for essential HTN, must call into question a differential diagnosis of renal artery stenosis (e.g. medial or intimal fibroplasia, atherosclerosis which is unlikely at this age, or renal artery aneurism) or adrenal tumors such as pheochromocytoma, primary hyperaldosteronism, functional adrenal cortical carcinoma, or cortisol secreting adenoma.

What additional history would be helpful?

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The nature of the HTN, e.g. paroxysmal or sustained, or presence of any associated symptoms such as headaches, palpitations, visual abnormalities, flushing, diarrhea, congestive heart failure, or shortness of breath. Any family history of HTN or adrenal tumors might also be informative in some patients.

What would you look for on physical examination?

What would you look for on physical examination?

Vital signs for pulse, BP, etc.

Any lymphadenopathy or abdominal mass

Bruits, particularly in the periumbical region

Signs of Cushing's disease such as truncal obesity, muscle wasting, abdominal striae, or facial changes suggestive of hypercortisolism

What labs would you order initially?

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Basic metabolic panel with electrolytes including potassium

The potassium level is 2.8 and does not normalize despite replacement of 40 mEq per day. Two anti-HTN meds are required to control the blood pressure.

What is the most likely diagnosis?

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A low potassium in this setting strongly suggests a diagnosis of primary hyperaldosteronism.

What are the etiologies of primary hyperaldosteronism and how are they treated?

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Adrenal adenoma or primary adrenal hyperplasia. The former is treated with surgical excision and the latter with medical therapy using potassium sparing diuretics such as spironolactone. Adrenal adenoma tends to be more severe leading to more refractory hypokalemia.

What would you expect serum aldosterone and renin levels to be and how is primary hyperaldosteronism classically diagnosed?

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In primary hyperaldosteronism the aldosterone levels tend to be elevated in association with suppressed renin levels (high aldosterone to renin ratio), while in secondary hyperaldosteronism the renin levels tend to be elevated. Primary aldosteronism is typically diagnosed by analysis of the aldosterone/renin ratio and/or by a salt loading test. Aldosterone levels will be suppressed with salt loading in a normal individual, but will remain elevated if there is autonomous secretion of aldosterone.

What imaging should be obtained in the setting of primary aldosteronism?

What imaging should be obtained in the setting of primary aldosteronism?

A CT scan with thin cuts is usually the best test. Many of these tumors are small and 3 mm cuts are often required for the diagnosis. Adrenal vein sampling can be obtained selectively to try to determine laterality. An endocrine consult is typically obtained to sort this out.

CT demonstrates a 1 cm R adrenal tumor. How would you manage this?

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Laparoscopic R adrenalectomy with preoperative treatment with potassium sparing diuretics and potassium repletion.

What percentage of aldosterone secreting tumors are malignant?

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It is very rare for an aldosterone secreting tumor to be malignant. The overwhelming majority are benign.

Selected Reading

Munver R, Yates J: Diagnosis and surgical management for primary hyperaldosteronism. *Current Urology Reports* 2010;11:51-7.

Topic:

Oncology: Adrenal Tumors

Subtopics:

Primary Hyperaldosteronism