The Common Masses

Adrenal Incidentaloma with Cushing's Syndrome

By M. Usman Chaudhry, MD

Table 1
Patient investigation

Physical examination:
- moderate hypertension without orthostasis
- Absence of: hirsutism, moon faces, dorsal hump, supraclavicular fat pads, thyromegaly or thyroid nodules, lyphadenopathy, splenomegaly, striae rubrae, café-au-lait skin spots

Bone scan:
- Negative for any metastasis (breast cancer history)

Biochemical probe:
- Normokalemia
- Three negative serial 24-hr urine samples for fractionated catecholamines vanillyl-mandelic acid with metanephrines
- Normal aldosterone renin ratio and total testosterone

Further workup:
- High 24-hr urine cortisol: 439 nmol/24-hr (normal <300).
- Suppressed adrenocorticotropic hormone: <2.2 pmol/L (normal 2.2-10.2)
- Unsuppressed serum cortisol with low (1 mg) and high dose (8 mg) overnight dexamethasone suppression tests

Result:
- Awaiting laparoscopic adrenalectomy

Mrs. R, a 74 year-old mother of five, underwent imaging evaluation for renal artery stenosis. She has uncontrolled hypertension (and is taking triple oral antihypertensives), diabetes mellitus (*i.e.*, Type 2), osteoporosis, and ischemic heart disease. Mrs R. underwent a left mastectomy in 1983 for breast cancer. The magnetic resonance angiography was negative, but picked up an incidental 3.5 cm right adrenal mass (Figure 1). She had no clinical symptoms of episodic pallor, flushing, headaches, diaphoresis, thyroid disease, leg cramps, easy bruising, or hyperandrogenism. She never sustained an episode of renal lithiasis. Her exam and investigations are summarized in Table 1. Adrenocortical masses are among the most common tumours in humans. Only a small proportion of these tumours cause endocrine disease, such as primary hyperaldosteronism, hypercortisolism, hyperandrogenism, or pheochromocy-

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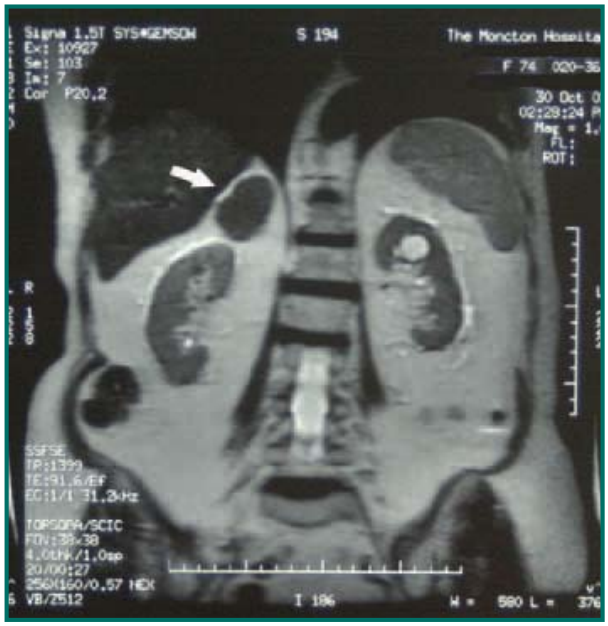

Figure 1. MRI of abdomen showing right adrenal adenoma.

toma. Less than 1% are malignant.[1] An adrenal incidentaloma must be characterized with respect to functional and malignant potential with imaging phenotype, mass size, and hormonal evaluation. Other possibilities should also be considered in the differential diagnosis, such as infection (tuberculosis), adrenal hemorrhage, lymphoma, and secondary metastasis from primary elsewhere. Lesions > 5 cm should be removed after ruling out hormonal oversecretion as the risk of adrenocortical cancer is higher.[2] Classical overt Cushing's syndrome is characterized by plethora, moon face, buffalo hump, central obesity, easy bruising, purple striae, proximal muscle weakness, acne, hirsutism, osteoporosis, hypertension, and glucose intolerance.[3] Patients with non-functional adrenal masses should be followed with periodic scans. In most patients these tumours do not change in size. However, current practice is to remove any mass which enlarges during the followup period. Laparoscopic adrenalectomy is the procedure of choice, where available, when the risk of malignancy is small, and the size of the tumour is < 6 cm.[4,5] Cushing's syndrome with hypertension, progressively severe osteoporosis, and hyperglycemia called for surgical removal of this hormonally active adrenal incidentaloma. The size of the tumour, comorbid conditions, and availability of laparoscopic expertise were the factors taken into account for consideration of this approach. The patient now awaits surgery.

Practice Pointer

Laparoscopic adrenalectomy is the procedure of choice when the risk of malignancy is small and the tumour size is <6 cm.

Adrenocortical masses are among the most common tumours in humans. Less than 1% are malignant.

References
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