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ENDOCRINOLOGY BOARD REVIEW MANUAL

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A Diagnostic Approach for Evaluating the Adrenal Mass

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Cover Illustration by Christine Schaar

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A Diagnostic Approach for Evaluating the Adrenal Mass

Jonathan S. Williams, MD, and Paul R. Conlin, MD

INTRODUCTION

An adrenal mass can be found as part of an evaluation for a specific complaint related to adrenal pathology or as an incidental finding on a radiographic investigation for unrelated issues (the adrenal incidentaloma). Most adrenal masses are either adrenal adenomas or malignant metastases. Other important adrenal tumors include adrenal carcinoma and pheochromocytoma. Postmortem studies performed prior to the advent of routine computed tomography (CT) reported prevalences of 1% to 6% for adrenal masses.¹ As the use of CT and magnetic resonance imaging (MRI) for the evaluation of abdominal complaints became routine, the incidence of discovering adrenal masses pre-mortem rose (to a range of 0.4%–4.4%),^{2,3} approaching the absolute incidence reflected by the postmortem data.

The work-up of an adrenal mass begins with a thorough history and physical examination and, importantly, a directed hormonal evaluation. Radiographic studies are then implemented to investigate positive or equivocal laboratory findings as part of the diagnostic schema. Knowledge of the prevalence of adrenal diseases is important in the evaluation of an adrenal mass.

ADRENAL INCIDENTALOMA

The widespread use of high-resolution radiographic techniques has led to the increasingly frequent detection of asymptomatic adrenal masses (adrenal incidentalomas). Common to all incidental findings are the difficulties encountered in trying to determine clinical significance and defining the optimal diagnostic approach in a cost-effective manner. The primary considerations in diagnosis are whether the lesion discovered is benign or malignant and whether it is functional or nonfunctional.

CASE PRESENTATION

Initial Presentation

A 50-year-old man is referred by his primary care physician to an endocrinologist for evaluation of a right adrenal mass discovered as part of a work-up for non-specific abdominal pain.

History

In the initial evaluation by his primary care physician, the patient complained of epigastric discomfort and excessive belching 2 hours after meals. On questioning he denied experiencing sleep disturbances, weight gain or loss, headaches, nocturia, polyuria, visual disturbances, a history of paroxysmal spells, easy bruising, or tremors. He has no significant past medical history and takes no medications. His sister has hypothyroidism, and his mother developed hypertension at age 65 years. He does not use tobacco. He has a glass of wine with dinner each night.

Physical Examination

Physical examination revealed a height of 6 ft and a weight of 192 lb. His blood pressure was 128/86 mm Hg and his heart rate was 72 bpm. His examination was notable for the absence of facial plethora or fat pad redistribution. Also absent were striae, ecchymoses, abdominal masses, tremor, and proximal muscle weakness.

Laboratory Evaluation

Serum laboratory evaluation revealed the following values: potassium, 4.2 mg/dL; sodium, 140 mg/dL; creatinine, 0.9 mg/dL; calcium, 9.0 mg/dL; and albumin, 4.0 mg/dL.

Results of a 24-hour urine collection evaluation were as follows: epinephrine, 10 µg/24 h (normal, 2–24 µg/24 h); metanephrine, 101 µg/24 h (normal, 90–690 µg/24 h); and cortisol, 21 µg/24 h (normal, 2–20 µg/24 h).

An overnight dexamethasone suppression test (1 mg) revealed a serum cortisol level of 1.1 µg/dL.