

Enlarging hypermetabolic nodule: benign non-functional adrenocortical adenoma

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DESCRIPTION

A 70-year-old woman with controlled type 2 diabetes mellitus and hypertension presented for evaluation of chronic abdominal discomfort. An incidental 3.2×3.5×3 cm left adrenal mass was identified on CT. Physical examination revealed obesity stage 2 without a Cushingoid appearance and controlled hypertension with a regular heart rate. Biochemical evaluations for Cushing syndrome, primary aldosteronism and pheochromocytoma were negative. A 1-year follow-up CT of the adrenal glands with washout showed a larger left-sided adrenal mass, measuring 4.3×3.4×3 cm (figure 1A). The attenuation values of the mass were indeterminate: non-contrast, 15 Hounsfield unit (HU); portal venous, 70 HU; delayed, 42 HU; absolute washout, 51%. MRI of the abdomen confirmed the left adrenal mass (figure 1B,C). Given the rapidly increasing size, malignancy was suspected and a whole-body positron emission tomography/CT scan using 18F-fluorodeoxyglucose (18F-FDG) was performed, which demonstrated (figure 1D,E) an 18F-FDG avid adrenal

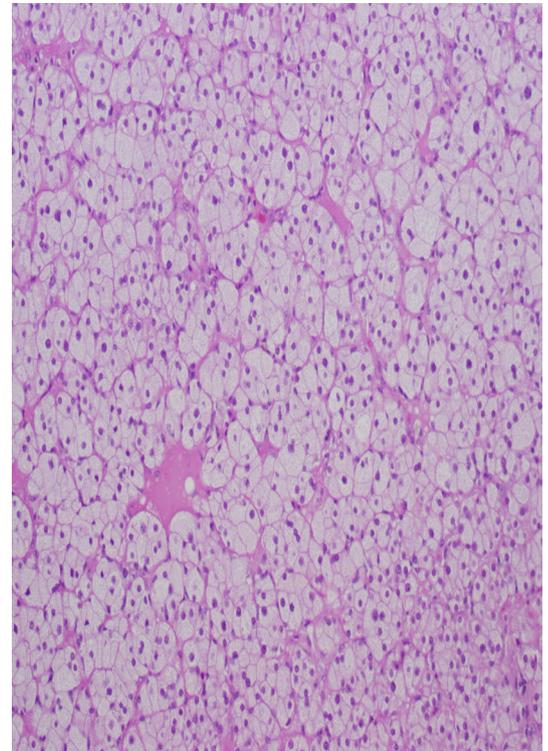


Figure 2 Microscopic examination showed mainly clear cell pattern with a focal eosinophilic component, consistent with a benign adrenocortical adenoma.

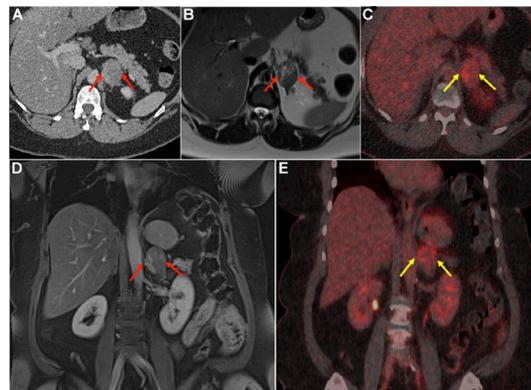


Figure 1 (A) Axial postcontrast CT image of the abdomen showing (arrows) a nodular mass in the left adrenal gland measuring 4.3×3.4×3 cm with low attenuation (non-contrast HU: 15). (B) Axial T2-weighted MR-image of the abdomen showing the left adrenal mass (arrows) with central areas of increased T2 signal. (C) Coronal fat suppressed contrast enhanced T1-weighted MR-image of the abdomen showing (arrows) the left adrenal mass with areas of contrast enhancement. (D) and (E) Axial and coronal fused 18F-FDG PET/CT images of the abdomen demonstrating (arrows) a hypermetabolic left adrenal mass with increased activity (SUV_{max} : 6.16) compared with the liver background (SUV_{max} : 2.4). HU, Hounsfield unit; PET, positron emission tomography.

mass (standardized uptake values (SUV_{max} : 6.16) with increased activity compared with the liver background (SUV_{max} : 2.4). Adrenal incidentalomas are lesions that are detected on imaging performed during the evaluation of non-adrenal disease, with a prevalence of ~4%–10% of all scans.^{1,2} Patients with an incidentaloma should undergo evaluation for Cushing syndrome or autonomous cortisol secretion, pheochromocytoma, primary aldosteronism if hypertensive or a malignant tumour (particularly if size >4 cm).³ Non-functional adrenal adenomas rarely show increased 18F-FDG activity; their SUV should be compared with the average 18F-FDG uptake by the liver. Given the size of the adrenal mass and the increased 18F-FDG uptake, a left laparoscopic adrenalectomy was performed to rule out adrenocortical carcinoma. Microscopic examination showed mainly clear cell pattern with a focal eosinophilic component, and a Weiss score of zero, consistent with a benign adrenocortical adenoma (figure 2). The patient did well after surgery.



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Learning points

- ▶ Adrenal incidentalomas are lesions that are detected on imaging performed during the evaluation of non-adrenal disease, with a prevalence of ~4%–10%.
- ▶ Non-functional adrenal adenomas rarely show increased 18F-FDG activity; their SUV should be compared with the average 18F-FDG uptake by the liver.

Contributors FH-S, GZP, CAS and JB were involved in the planning, conduct, reporting, conception and design, acquisition of data or analysis and interpretation of data.

Competing interests None declared.

Patient consent Obtained.

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