Subclinical Cushing’s syndrome: resection of adrenal incidentaloma

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DESCRIPTION

A 41-year-old woman was referred to general surgery due to an adrenal lesion discovered incidentally on abdominal ultrasound. She had epilepsy controlled by levetiracetam and phenobarbital. The patient was asymptomatic revealing mild, intermittent headaches and palpitations. On physical examination, there were no signs of adrenal disease, hypertension or obesity (Body Mass Index of 19 kg/m²). Her abdominal ultrasound demonstrated a hypoechoic nodule localised superiorly in relation to the upper pole of the left kidney measuring 33×27 mm. Before an adrenal incidentaloma, this lesion should be evaluated for malignancy and hormonal secretion. Imaging investigation revealed a solid, well-defined left adrenal mass with low unenhanced CT attenuation values (<10 Hounsfield Units (HU)), without calcifications or invasion of adjacent organs, measuring 30×40 mm (Figure 1). Her renal function and electrolyte serum levels were normal, as well as plasma/24-hour urine fractionated metanephrines, catecholamines, renin and aldosterone serum levels. Bone density by DEXA scan (Dual energy X-ray absorptiometry) and the glucose tolerance by 75 g oral glucose tolerance test were within the normal range. Two nocturnal suppression tests after 1 mg of dexamethasone were performed and revealed high levels of cortisol (13.8 ug/dL and 17.1 ug/dL, respectively: normal levels <1.8 ug/dL) raising the suspicion of excessive and abnormal cortisol production. The 24-hour urine-free cortisol levels were borderline (85.9 ug/dL: normal levels between 20 ug/dL and 90 ug/dL) that could be explained by the administration of phenobarbital that induces CYP3A4 metabolism and accelerates urinary cortisol metabolism. Serum adrenocorticotropic hormone (ACTH) levels were measured in response to corticotrophin-releasing hormone (CRH) administration and were found to be <0.005 ug/dL (two measurements), setting aside ACTH-dependent causes for high levels of cortisol. After excluding physiological causes of hypercortisolism, she was diagnosed with subclinical autonomous hypercortisolism. The decision to operate cortisol-secreting tumours without clinical stigmata is still under debate. Despite the absence of external signs, patients may have underlying clinical features (hypertension, diabetes, obesity) and this condition can progress to overt Cushing’s syndrome in a substantial percentage (12.5%). Surgical resection must be considered in young patients with well-documented autonomous cortisol secretion and symptomatic patients due to a functional adrenal mass. Therefore, our patient was a surgical candidate and laparoscopic transabdominal unilateral left adrenalectomy was performed without intraoperative complications (Video 1). Preoperative assessment of risk concerning glucocorticoid replacement therapy is vital to avoid postoperative adrenal insufficiency, haemodynamic instability and, even, death. Glucocorticoids should be initiated intraoperatively and continued in the postoperative period until cortisol levels stabilisation. A multidisciplinary teamwork including anaesthesiology, endocrinology and endocrine surgery is necessary to ensure a successful outcome. After operation, the patient showed temporary suppression of cortisol secretion, with early morning cortisol of 0.6 ug/dL. The patient was discharged after 4 days and the postoperative period relied on glucocorticoid replacement and hypotalamic-pituitary-adrenal axis monitoring. Anatomopathological analysis of

Figure 1 CT scan: Solid, well-defined left adrenal mass with low unenhanced CT attenuation values (<10 Hounsfield Units), without calcifications or invasion of adjacent organs, measuring 30×40 mm.
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Learning points

- Subclinical Cushing’s syndrome or autonomous cortisol secretion may have important clinical implications and can progress to overt Cushing’s syndrome in 12.5% of cases.
- Surgical decision-making should be guided by patients’ age, hormonal functioning adrenal mass, risk of malignancy and clinically attributable symptoms.
- Multidisciplinary teamwork (anaesthesiology, endocrinology and endocrine surgery) is extremely important to avoid intraoperative and postoperative complications in cortisol-secreting tumours and thus lead to a successful outcome.

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Case reports provide a valuable learning resource for the scientific community and can indicate areas of interest for future research. They should not be used in isolation to guide treatment choices or public health policy.

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