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A rare cavernous hemangioma of the adrenal gland

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ABSTRACT

INTRODUCTION: Cavernous hemangiomas of the adrenal gland are rare. We report a case of a cavernous hemangioma of the adrenal gland presenting as an adrenal incidentaloma suspicious for adrenal cortical carcinoma (ACC).
PRESENTATION OF CASE: A 78 year old woman was admitted after a fall. Abdominal computed tomography revealed a large right adrenal lesion with features suspicious for adrenal cortical carcinoma (5.4 cm × 3.3 cm, unilateral, tumor calcifications, average Hounsfield units 55). The tumor was removed intact by a laparoscopic approach and pathology revealed a cavernous hemangioma of the adrenal gland.
DISCUSSION: Adrenal incidentalomas are found in up to 10% of patients undergoing abdominal imaging. Differential diagnosis includes both benign and malignant lesions. Guidelines for removal of adrenal incidentalomas recommend surgery based on functional status, size, and presence of concerning features on diagnostic imaging. Cavernous hemangiomas are rare, benign vascular malformations which can be challenging to distinguish pre-operatively from malignant lesions such as ACC.
CONCLUSION: Cavernous hemangiomas of the adrenal gland are exceedingly rare. These benign tumors have imaging features which may be suggestive of adrenal cortical carcinoma. The treatment of choice is surgical excision due the difficulty of excluding malignancy.

1. Introduction

Cavernous hemangiomas of the adrenal gland are rare benign tumors. Pathologically they are characterized by dilated vascular spaces with an endothelial lining showing areas of degeneration.[1] We report a case of a cavernous hemangioma of the adrenal gland. It presented as an adrenal incidentaloma suspicious for adrenal cortical carcinoma (ACC). We review the literature on cavernous hemangiomas of the adrenal gland, focusing on the clinical presentation, imaging features and pathology of these lesions. We also highlight the challenges in distinguishing cavernous hemangiomas from ACC.

2. Presentation of case

A 78 female was admitted to hospital after falling down a flight of stairs. On presentation she had a slightly decreased Glasgow Coma Scale at 14, left sided facial droop and a blood pressure of 220/110 mmHg. She was taking no medications and a computed tomography (CT) scan of her head was normal. An X-ray of her right wrist showed an undisplaced distal radial fracture and a CXR revealed multiple rib fractures.

She was admitted to hospital and received treatment for her orthopedic injuries. During the admission she was found to have hyponatremia which resolved with treatment and recurrent falls. Six days after her admission she complained of chest and abdominal pain. This led to investigations including a CT scan of her chest and abdomen. In addition to her known rib fractures, she was found to have a large right adrenal lesion (5.4 cm × 3.3 cm) with areas of dystrophic calcification. This mass was well circumscribed with no apparent areas of invasion. There was no evidence of active bleeding or thrombus. The left adrenal was normal in appearance (Fig. 1a and b).

The patient exhibited non-specific signs and symptoms including hypertension, weakness and osteopenia. She did not have clinical features overtly suggestive of a functioning adrenal tumor.

Functionality of the tumor was explored with a series of laboratory investigations (Table 1). An aldosterone secreting tumor was ruled out due to normal potassium and lack of hypertension. The diagnosis of pheochromocytoma was excluded due to normal levels of urinary catecholamines on 24 h collection. The low dose dexamethasone suppression test resulted in a mildly elevated cortisol, raising the possibility of sub-clinical Cushing's syndrome. Imaging characteristics were suspicious for ACC as the tumor was large (5.4 cm × 3.3 cm), unilateral, contained dystrophic calcifications, and had high density (HU 55). There was no overt evidence of invasion. The patient was then offered resection due diagnostic uncertainty and the possibility of malignancy. The tumor was

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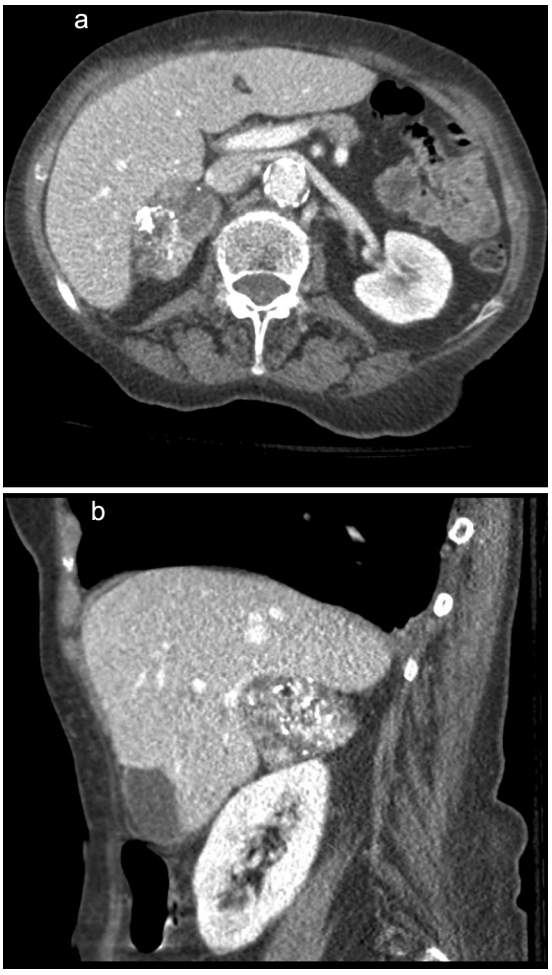

Fig. 1. (a) Large right adrenal lesion (5.4 cm × 3.3 cm) containing regions of dystrophic calcification but well circumscribed with no obvious areas of invasion (a) axial and (b) sagittal. (b) Large right adrenal lesion (5.4 cm × 3.3 cm) containing regions of dystrophic calcification but well circumscribed with no obvious areas of invasion (a) axial and (b) sagittal.

approached laparoscopically via the transperitoneal approach, with a plan to convert to conventional, open surgery if any evidence of invasion was found. The decision with regard to approach to surgery is addressed in the discussion. The tumor was removed intact (Fig. 2), measuring almost 6 cm and was heterogeneous with

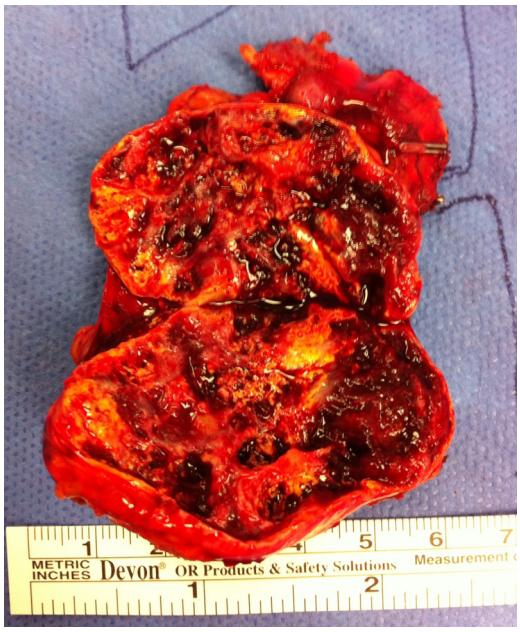

Fig. 2. Resected adrenal gland showing a smooth surface and on sectioning an ill defined markedly congested lesion within which were isolated cystic spaces.

multiple intratumoral cavities. The pathology showed a benign, well-encapsulated adrenal cavernous hemangioma (Fig. 3).

In follow up at three months after her operation, the patient is doing very well. Her incisions are healed with no evidence of herniation. No biochemical or radiographic follow up was conducted due to the benign pathology.

3. Discussion

Adrenal incidentalomas are adrenal tumors, greater than 1 cm, identified on imaging performed for other indications.[2] Such lesions are found in up to 10% of patients undergoing abdominal imaging, leading to the growing problem of how these lesions should be further investigated and managed.[2,3] Guidelines have been developed to aid clinicians and patients in determining which incidental adrenal masses should be excised. These guidelines incorporate lesion size, functional status and imaging features. Resection is generally advocated for all functioning lesions, as well as those with features suggestive of malignancy. These features include size over 4 cm (with thresholds ranging from 2.5 to 6 cm),

Table 1

Test	Patient value	Normal range
24 h urinary normetanephrine	1.4 μmol/d	0.8–3.1 μmol/d
24 h urinary metanephrine	0.3 μmol/d	0.2–0.9 μmol/d
24 h urinary epinephrine	59 pmol/L	55–601 pmol/L
24 h Urinary cortisol	102.9 nmol/d	25–220 nmol/d
Early morning serum cortisol (03:00)	650 nmol/L	275–555 nmol/L
Cortisol 1 mg overnight dexamethasone suppression test	90 nmol/L	<80–140 nmol/L
Potassium	4.2 mmol/L	3.3–5.1 mmol/L

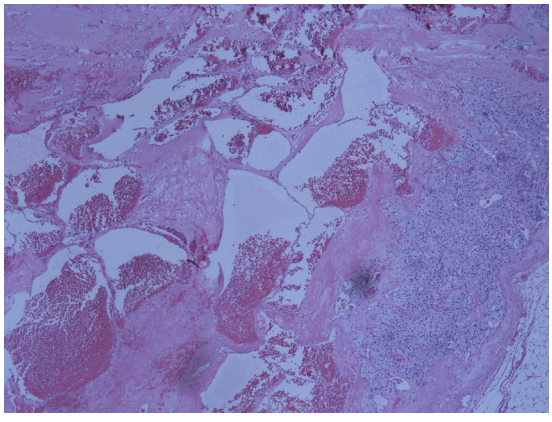

Fig. 3. Thick walled, large interconnecting vascular channels filled with blood are present adjacent to the adrenal cortex. H&E 100×.