

## CASE REPORT

# Chronic Expanding Haematoma of the Adrenal Gland Mimicking Malignancy

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### ABSTRACT

*Computed tomography and magnetic resonance imaging scans are often required to characterise an adrenal lesion according to its size, heterogeneity, content, and enhancement pattern. This report is of a diagnostic dilemma, in which a chronic expanding haematoma of the adrenal gland closely mimicked adrenal malignancy. The patient underwent computed tomography scan for an unrelated condition, and was incidentally found to have a large heterogeneous right adrenal mass. The mass was resected and pathological examination showed a chronic expanding haematoma. Specific imaging features of this entity and other differential diagnoses, such as adrenal malignancy and adrenal haemangioma, are reviewed.*

*Key Words:* Adrenal gland neoplasms, Hemangioma, Hematoma

### INTRODUCTION

Computed tomography (CT) plays a major role in the imaging of adrenal masses. Small size (<3 cm), low attenuation, and fast enhancement washout are features of benign masses. Large size, high density, irregularity, inhomogeneity, and interval enlargement suggest a malignant tumour.

This report presents an exception to this guide, and an intriguing diagnostic dilemma. A patient with a chronic expanding haematoma of the adrenal gland, closely mimicking malignancy, is described.

### CASE REPORT

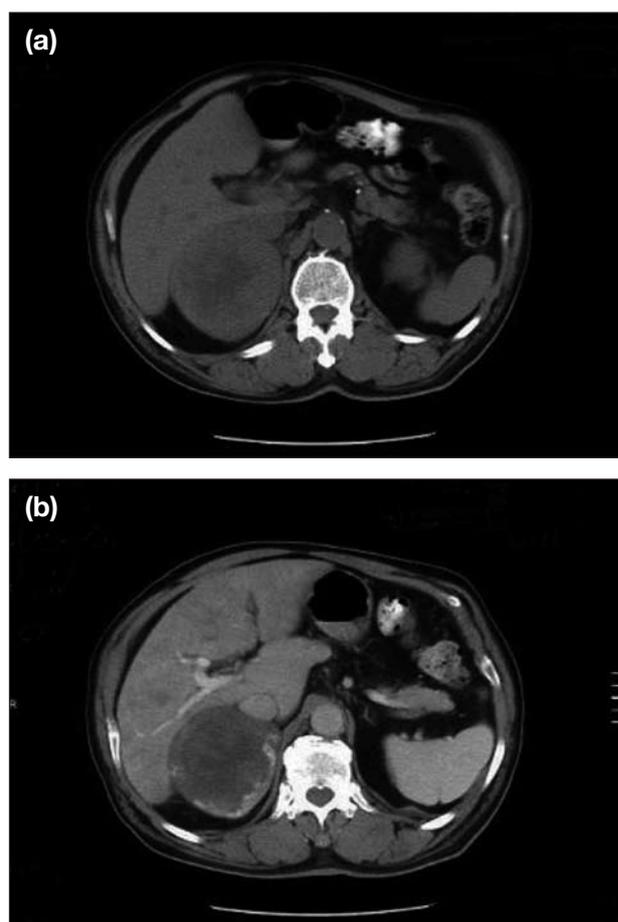
A 72-year-old man was admitted for bilateral pleural effusion. CT scan showed no lung nodule, but an incidental finding of a right adrenal mass was noted (Figure 1). The mass measured 8 cm in diameter and the scan showed heterogeneous attenuation, with peripheral enhancement and central non-enhancing areas. The right kidney was displaced downwards, without evidence of invasion by the mass (Figure 2). The right renal artery and vein were in close proximity to the adrenal mass,

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**Figure 1.** (a) Pre- and (b) post-contrast axial computed tomography images of a mass in the right adrenal gland with heterogeneous attenuation and peripheral/heterogeneous enhancement.



**Figure 2.** Coronal reformatted post-contrast computed tomography image showing the soft tissue mass separate from the right kidney and the liver.

but no obliteration or thrombosis could be detected. Imaging features suggested an adrenal malignancy and resection of the adrenal mass was performed.

The surgical specimen revealed a well-circumscribed 8-cm adrenal mass with haemorrhagic parenchyma and central necrosis almost entirely replacing the adrenal gland. A thin rim of adrenal tissue was present at the periphery.

Microscopic examination confirmed the appearance of an encapsulated organised haematoma with recanalisation. No tumour cells were detected. A thin rim of adrenal cortical cells were found in almost all the blocks sampled from the thin capsule, which was consistent with a prior slowly expanding process. Residues of normal adrenal medulla tissue were identified in the periphery. The overall picture was compatible with a chronic expanding haematoma of the right adrenal gland.

The pleural effusions resolved postoperatively, as shown by subsequent chest radiograph.

## DISCUSSION

Chronic expanding haematoma was first described by Reid et al as a rare haematoma, which persists for more than 1 month and is slowly enlarging.<sup>1</sup> The cause of the initial haemorrhage is usually related to trauma or previous surgery.<sup>2-5</sup> However, the history may not be identifiable for many patients, and this patient had no features of sepsis, hypotension, anticoagulation, or prior surgery that may have stimulated a spontaneous adrenal haemorrhage.<sup>6</sup>

Chronic expanding haematomas have been reported in various locations, including the chest, pelvis,<sup>7</sup> extremities, and epidural space.<sup>2</sup> To the authors' knowledge, this patient represents the second reported case of chronic expanding haematoma occurring in the adrenal gland.<sup>8</sup>

The self-expanding nature is thought to be due to the irritant effects of blood and its breakdown products, causing exudation and bleeding from capillaries in the granulation tissue. Pathologically, the mass consists of organised blood with granulation tissue and a fibrous capsule in the periphery.<sup>1</sup>

The condition poses a diagnostic dilemma, as the mass inadvertently mimics malignancy in the adrenal gland, as well as in other locations. CT features of an enlarging mass with heterogeneous attenuation and peripheral/heterogeneous enhancement is indistinguishable from a malignant neoplasm, as in this patient. The heterogeneous attenuation is due to interlaced fresh and old blood and heterogeneous enhancement is probably related to uneven distribution of vascular channels within the haematoma.

Adrenal haemangioma is also a differential diagnosis. CT is useful to differentiate chronic expanding haematoma from haemangioma. In the latter condition, irregular peripheral enhancement with progressive filling-in at the centre is characteristic; whereas in the former condition, the enhancement seen in the haematoma is heterogeneous or peripheral in the arterial phase, spreading to the internal portion in a mosaic pattern.

Some clinicians advocate magnetic resonance imaging (MRI) as a possible diagnostic tool for this benign lesion.<sup>9</sup> In both T1 and T2 images, the lesion is heterogeneous, intermingled with hyperintense T1 foci due to subacute haemorrhage comprising fresh and old blood — known as the 'mosaic sign'.<sup>8</sup> This is a feature of both CT and MRI. A peripheral low-intensity fibrous capsule can be seen. Heterogeneous enhancement with probable random spreading across the lesion is also suggestive of chronic expanding haematoma, which is differentiated from the classical central fill-in type of enhancement in a haemangioma.

Although the MRI features are characteristic of chronic expanding haematoma, they do not preclude the possibility of tumour haemorrhage.<sup>8</sup> Nevertheless, complete surgical removal is the mainstay treatment for this

growing mass, as drainage may result in severe bleeding and the diagnosis is only established by subsequent pathological examination for many patients.

In conclusion, chronic expanding haematoma should be considered as a differential diagnosis in the presence of an expanding large adrenal mass with heterogeneous or peripheral enhancement on CT or a mosaic pattern of delayed enhancement, even with no history of trauma or predisposition to haemorrhage.

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