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Giant Bilateral Cystic Adrenal Incidentalomas in a Young Woman: A Rare Case Report

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Abstract **Case Report**

Adrenal incidentalomas are adrenal masses discovered incidentally during imaging performed for reasons unrelated to adrenal disease. While most incidentalomas are benign and non-functioning adenomas, cystic adrenal lesions are rare, accounting for less than 1% of all adrenal tumors. Bilateral presentation is exceptional, and giant forms are even more uncommon, posing diagnostic and therapeutic challenges. We report the case of a 19-year-old woman with no significant medical history who presented with progressive asthenia. Imaging revealed bilateral cystic adrenal masses, including a giant left-sided lesion measuring 14 cm in its largest axis. Comprehensive hormonal evaluation was normal, excluding a functional adrenal tumor. Hydatid serology was negative. Given the size of the left-sided lesion and the potential risk of complications, surgical management with cyst aspiration was performed. Histopathological examination confirmed a benign adrenal pseudocyst without cellular atypia or malignancy. The smaller, asymptomatic right-sided cysts were managed conservatively with regular clinical, biological, and radiological follow-up. This case highlights the rarity of bilateral giant cystic adrenal incidentalomas and emphasizes the importance of systematic hormonal assessment, careful radiological evaluation, and individualized management to balance the risks of complications and adrenal insufficiency.

Keywords: Adrenal incidentaloma, adrenal cyst, adrenal pseudocyst, bilateral adrenal lesions, giant adrenal cyst, non-functioning adrenal tumor, young woman.

INTRODUCTION

Adrenal incidentalomas are defined as adrenal masses discovered incidentally during imaging performed for reasons unrelated to suspected adrenal pathology. Their prevalence increases with age and with the widespread use of advanced imaging techniques, reaching approximately 4–7% in the adult population [1]. The majority correspond to benign non-functioning adenomas, whereas cystic adrenal lesions are rare, accounting for less than 1% of all adrenal tumors [2].

Adrenal cysts represent a heterogeneous group of lesions, including endothelial cysts, pseudocysts, epithelial cysts, and parasitic cysts [3]. They are most often asymptomatic and discovered incidentally. However, clinical manifestations may occur when the cyst reaches a large size, leading to abdominal pain, compressive symptoms, or complications such as intracystic hemorrhage or infection [4].

Bilateral adrenal cysts are exceptional, and giant forms are even rarer, representing a true diagnostic and therapeutic challenge [5]. Systematic hormonal evaluation is mandatory in all patients with adrenal incidentalomas in order to exclude hormone hypersecretion, even in the absence of suggestive clinical signs, in accordance with international recommendations [6].

We report the case of a young woman presenting with bilateral giant non-functioning cystic adrenal incidentalomas, with histopathological confirmation of an adrenal pseudocyst, and discuss the diagnostic features and management strategies in light of the literature.

CASE REPORT

A 19-year-old woman with no significant past medical history presented with progressive generalized asthenia. Clinical examination was strictly normal, with

no signs of hormonal hypersecretion or abdominal compression syndrome.

Abdominal ultrasound performed as part of the etiological workup revealed a 60 mm cystic lesion in the left adrenal lodge, prompting further evaluation by abdominal computed tomography (CT).

CT imaging demonstrated bilateral cystic lesions centered on the adrenal glands, of variable sizes and shapes, more voluminous and contiguous on the left side.

On the right adrenal gland, two cystic lesions measuring 1.8 × 2.1 × 2.2 cm and 1.9 × 2.4 × 2.5 cm were identified. On the left side, multiple contiguous cystic formations were observed, with an overall maximum axis measuring 14 cm, consistent with a giant adrenal cyst **(Figure 1)**.

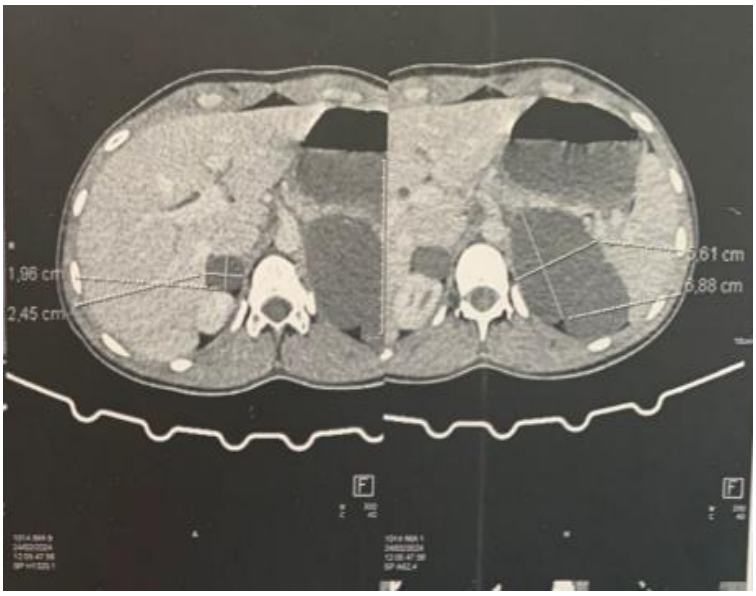

Figure 1: Abdominal computed tomography scan revealing massive bilateral cystic formations centered on the right and left adrenal glands.

Comprehensive adrenal hormonal evaluation (serum cortisol, screening for pheochromocytoma, and other recommended investigations) was strictly normal, excluding a functional adrenal incidentaloma. Hydatid serology was negative.

Given the large size of the left-sided lesions and the potential risk of complications, surgical management was undertaken on the left side. The procedure consisted of aspiration of the cystic fluid content.

Histopathological examination showed morphological features consistent with an adrenal pseudocyst, without cellular atypia or evidence of malignancy.

The right adrenal cysts, being small and asymptomatic, were managed conservatively with regular clinical, biological, and radiological follow-up.

DISCUSSION

Adrenal cysts are rare lesions, described with a slight female predominance and most often discovered incidentally [2]. Histopathologically, they are classified into four main types: endothelial cysts, pseudocysts, epithelial cysts, and parasitic cysts [3]. Adrenal pseudocysts, as in our case, are characterized by the absence of an epithelial lining and are frequently secondary to previous or repeated hemorrhagic events [7].

Clinically, most patients remain asymptomatic, particularly when lesions are small. When symptoms occur, they are usually related to the mass effect of large cysts on adjacent structures [4]. In our case, despite the giant size of the left-sided lesion, symptoms were limited to non-specific asthenia, illustrating the frequently paucisymptomatic nature of these lesions.

Imaging plays a central role in diagnosis and therapeutic decision-making. Computed tomography helps confirm the cystic nature of the lesion, evaluate density, margins, septations, or calcifications, and identify suspicious features suggestive of malignancy [8]. Magnetic resonance imaging may be useful in diagnostically challenging situations. However, large lesions may pose diagnostic difficulties, as certain malignant tumors can exhibit cystic degeneration [9].

According to international guidelines, complete hormonal evaluation is mandatory in all patients with adrenal incidentalomas, even in the absence of clinical signs of hormone excess [6]. In our case, hormonal

assessment was normal, allowing classification as non-functioning incidentalomas.

The management of adrenal cysts remains debated. Clinical, biological, and radiological surveillance is generally recommended for asymptomatic, non-functioning, small lesions without suspicious radiological features [10]. Conversely, surgical management is often recommended for symptomatic cysts, in cases of diagnostic uncertainty, progressive growth, or when size exceeds 5–6 cm, due to the increased risk of complications and potential malignancy [5].

The peculiarity of our case lies in the bilateral involvement associated with a unilateral giant lesion, justifying a differentiated therapeutic strategy: surgical intervention on the left side and surveillance on the right. This approach minimizes the risk of adrenal insufficiency while ensuring appropriate management based on the individual risk profile of each lesion [6].

Histopathological examination confirmed a benign adrenal pseudocyst without evidence of malignancy, consistent with literature data indicating a low probability of malignant transformation in such lesions [7]. The favorable evolution under surveillance of the contralateral cysts further supports individualized management based on clinical, biological, and radiological evaluation.

CONCLUSION

Cystic adrenal incidentalomas are rare lesions, and their bilateral presentation associated with a giant form is exceptional [5]. This case highlights the importance of systematic hormonal evaluation in accordance with international recommendations to exclude functional adrenal tumors, even in the absence of suggestive clinical signs [6]. Imaging plays a central role in lesion assessment, although differentiation between benign and malignant lesions may be challenging in large forms [8].

Management should be individualized, taking into account size, symptoms, radiological characteristics, and bilaterality in order to limit complications while preserving adrenal function [10]. Surgery is generally indicated for symptomatic or large lesions, whereas close clinical, biological, and radiological follow-up may be proposed for small, non-functioning lesions without suspicious features.

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