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CASE REPORT

Adrenal lipomyoma, a common incidentaloma. Presentation of two cases and review of the role of imaging

Mielolipoma suprarrenal, incidentaloma frecuente. Presentación de dos casos y revisión del rol de la Imagenología

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ABSTRACT

Introduction: adrenal incidentaloma is a condition that radiologists frequently encounter in their daily practice due to the increasing number of radiological examinations performed worldwide. An adrenal incidentaloma is defined as a mass greater than or equal to 1 cm in diameter discovered incidentally during an abdominal or thoracic imaging examination in a patient with no symptoms or signs suggestive of adrenal disease. In our setting, there has been an increase in incidentally discovered tumors, and among their causes, myelolipoma occupies a significant place in terms of frequency. Our caseload has recently been enriched with the diagnosis of myelolipomas, which are part of the incidentaloma group, despite being a benign tumor with an incidence of 0,2-0,4 % in the population.
Objective: the aim of this article is to demonstrate the value of imaging studies in the diagnosis of this entity through the presentation of two clinical cases. The first case is a male patient with chronic kidney disease and adrenal incidentaloma, which turned out to be a bilateral adrenal myelolipoma from a radiological point of view, unusual due to its bilateral presentation, and the second case, a 57-year-old female patient who presented with renal colic and incidentally had a unilateral adrenal myelolipoma.
Conclusions: all radiologists should actively participate in the diagnosis of adrenal lesions using appropriate imaging techniques. Tomography was an effective diagnostic tool in our study.

Keywords: Adrenal; Tomography; Myelolipoma; Ultrasound.

RESUMEN

Introducción: el incidentaloma suprarrenal es una entidad que de manera frecuente en la práctica habitual enfrentan los radiólogos debido al número cada vez más frecuente de exploraciones radiológicas que se realizan en el mundo. Se define como "incidentaloma" suprarrenal a la masa mayor o igual a 1 cm de diámetro descubierta de manera incidental en un examen imagenológico abdominal o torácico, en un paciente libre de síntomas o signos sugerentes de enfermedad suprarrenal. En nuestro medio se observa un incremento de los tumores descubiertos incidentalmente y dentro de sus causas el Mielolipoma ocupa un lugar no despreciable en cuanto a frecuencia. Nuestra casuística se ha enriquecido en los últimos tiempos, con el diagnóstico de los mielolipomas, formando parte de los incidelantomas, a pesar de ser este un tumor benigno con una incidencia del 0,2-0,4 % en la población.
Objetivo: el presente artículo tiene como objetivo demostrar el valor de los estudios imagenológicos en el diagnóstico de esta entidad, a través de la presentación de dos casos clínicos, el primer caso, un paciente

masculino con enfermedad renal crónica e incidentaloma suprarrenal, que resulto desde el punto de vista radiológico un mielolipoma suprarrenal bilateral, inusual su presentación bilateral y el segundo caso, una paciente femenina de 57 años que acude con un cólico nefrítico y aparece de forma incidental un mielolipoma suprarrenal unilateral.
Conclusiones: todo radiólogo debe participar activamente en el diagnóstico de las lesiones suprarrenales utilizando las técnicas de imagen adecuadas. La tomografía constituyó un medio diagnóstico eficaz en nuestro estudio.

Palabras clave: Suprarrenal; Tomografía; Mielolipoma; Ecografía.

INTRODUCTION

Adrenal incidentaloma is an entity that radiologists frequently encounter in routine clinical practice due to the increasing number of radiological examinations performed worldwide. An adrenal "incidentaloma" is defined as a mass greater than or equal to 1 cm in diameter discovered incidentally in an abdominal or thoracic imaging examination in a patient free of symptoms or signs suggestive of adrenal disease, and not performed in the process of staging or follow-up of cancer.[1] The likelihood of finding an adrenal incidentaloma is directly proportional to age, while in children it does not exceed 0,4 %, between the ages of 50 and 70, however, it reaches a frequency of up to 10 %.[2]

In general, radiologists have a range of imaging techniques at their disposal to characterize adrenal incidentalomas, ranging from ultrasound, computed axial tomography (CAT), magnetic resonance imaging (MRI), which allow for the diagnosis of most adrenal lesions, to other more sophisticated studies such as positron emission tomography/computed tomography (PET/CT) and MR spectroscopy.[3]

It is important to define the level of functionality of incidentalomas at the time of diagnosis. The literature reports that only 20 % are usually functional at the time of diagnosis and approximately 80 % are benign non-functional tumors.[1] In our setting, there has been an increase in incidentally discovered tumors, and among their causes, myelolipoma occupies a significant place in terms of frequency, despite being a benign tumor with an incidence of 0,2-0,4 % in the population.[4] According to Bautista Olayo et al., there is a possibility of bilateral involvement of up to 10-11 %.[5]

In our country, the first report of adrenal myelolipoma (MA) was published in 1986 by Larrea. To date, there have been several reports of national cases, as well as descriptive studies with series of patients with this pathology.[4] It is a benign neoplasm of the adrenal cortex, generally non-functioning, slow-growing, formed by mature adipose tissue and hematopoietic tissue in varying proportions. This type of tumor was first described in 1905 by Edgar Von Gierke and named myelolipomas by Charles Oberling in 1929.[5,6]

Most myelolipomas are asymptomatic (70 %), but when these tumors reach a large size, known as giant MA (≥ 10 cm in diameter), they present a potential risk of rupture, causing abdominal pain, a palpable mass, retroperitoneal hemorrhage, as well as local symptoms secondary to mechanical compression, requiring surgery.[4,6]

This article aims to present two clinical cases in which imaging studies made it possible to diagnose myelolipoma. the first a male patient with chronic kidney disease and adrenal incidentaloma, which turned out to be a bilateral adrenal myelolipoma from a radiological point of view, frequent but unusual in its bilateral presentation, and the second case, a 57-year-old female patient diagnosed with unilateral adrenal myelolipoma. A review of the role of imaging studies in this entity is also performed.

CASE REPORT

Clinical case 1

This is the case of a 73-year-old man with a history of chronic kidney disease, who was admitted two years ago with clinical symptoms of urinary sepsis. He was admitted to the ward with elevated creatinine levels, and during his hospital stay, several imaging tests were performed. Initially, an abdominal ultrasound was performed, revealing right renal hydronephrosis as well as homogeneous hyperechoic images in the form of a mass in the projection of both adrenal glands, with well-defined lobulated edges. The image in the right adrenal gland measured 9,3 cm by 6 cm and in the left adrenal gland 8,7 cm by 8,7 cm (figure 1).

Subsequently, a simple tomography study was performed because the patient had chronic kidney disease. Multiplanar coronal and sagittal reconstructions were obtained, and the following findings were observed in the study: a right adrenal mass measuring 9 x 6 cm in diameter, broad, with a sharp profile, in contact with the posterolateral convexity of the inferior vena cava, predominantly hypodense with an attenuation value of -81 HU, right hydronephrosis, and a left adrenal mass with similar characteristics, hypodense content, attenuation values below 100 HU, compatible with bilateral adrenal myelolipoma (figure 2).

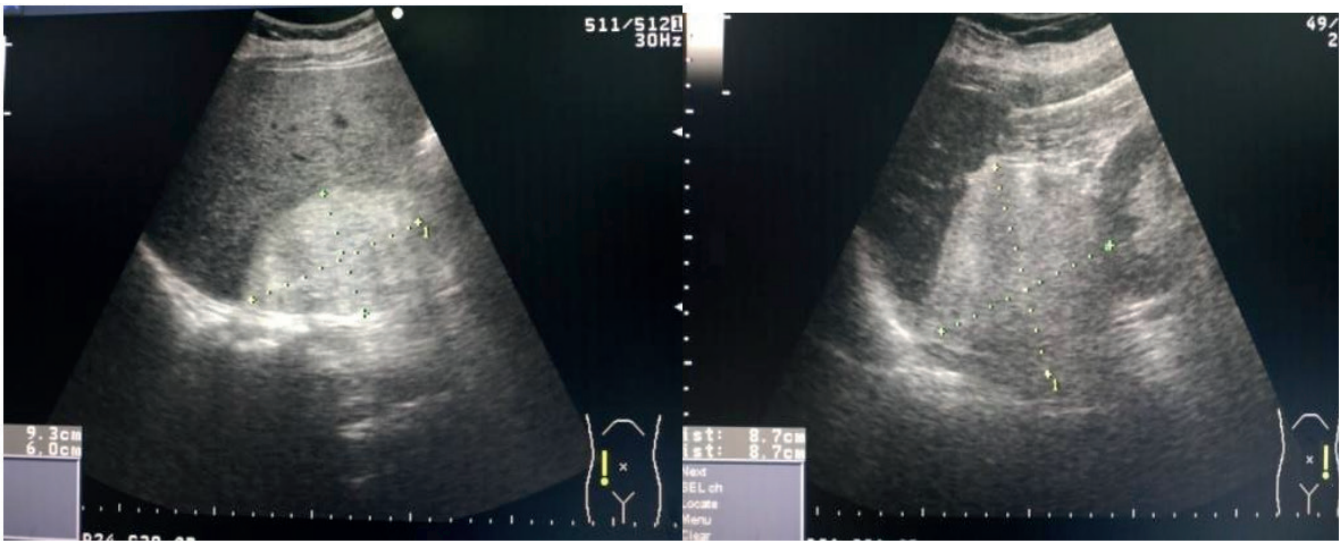

Figure 1. Mass-like hyperechoic images with uniform echogenicity in the projection of both adrenal glands, with well-defined and regular lobulated edges

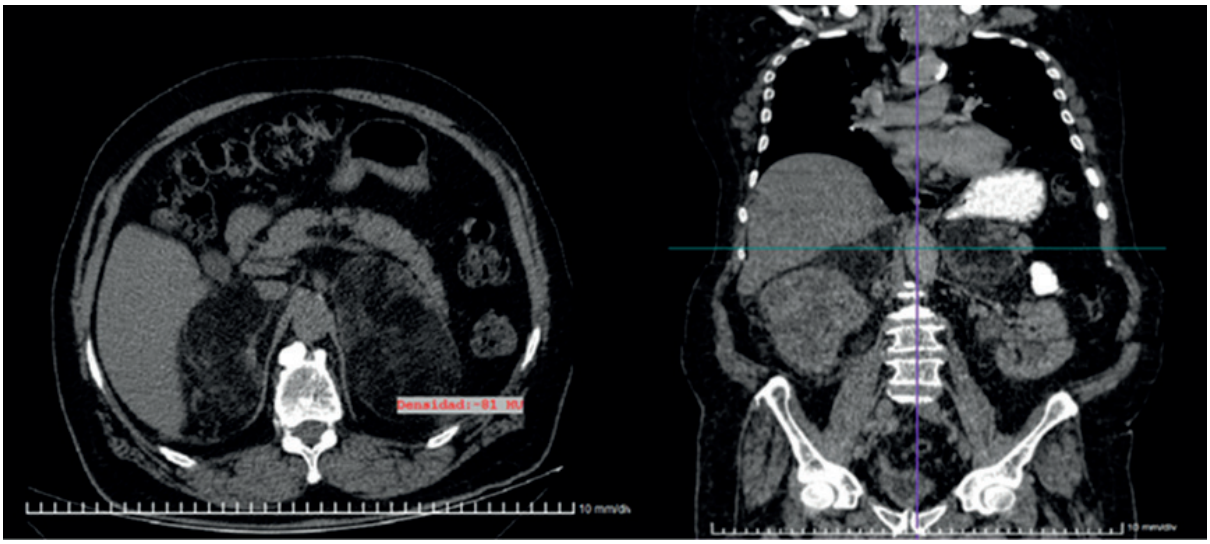

Figure 2. Bilateral adrenal myelolipoma. Plain abdominal tomography (axial section and coronal reconstruction)

Due to his underlying disease, the patient did not undergo surgery; a hormonal study was performed, which ruled out functionality. He is periodically examined by ultrasound and CT scan after the initial diagnosis, and no growth of the adrenal masses, endocrine dysfunction, or malignant transformation has been observed.

Clinical case 2

A 52-year-old female patient with a history of cholecystectomy who, in February of this year, underwent an abdominal ultrasound due to colicky pain in the right lumbar region and hematuria. The ultrasound showed both kidneys with regular contours, an image of 6 mm lithiasis toward the lower calyx of the right kidney causing slight caliectasia, and similarly, an image of 7 mm lithiasis toward the pelvis of the left kidney. In the projection of the right adrenal gland, an echogenic image with regular, well-defined, somewhat lobulated contours measuring 5,6 by 6 cm (figure 3) was observed, suggesting a reevaluation by abdominal CT scan with intravenous contrast.

The abdominal CT scan (figure 4) was performed with intravenous contrast administration. It shows that the lesion reported above the upper pole of the right kidney on ultrasound appears as a hypodense image, with fat density (-115 HU), which partially opens the adrenal gland on this side. This lesion measures approximately 5 by 4,5 cm and has septa inside, consistent with unilateral adrenal myelolipoma.

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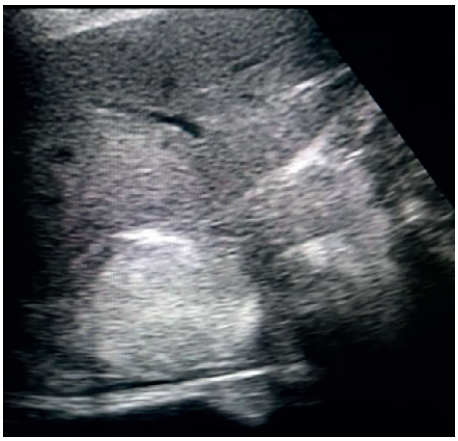

Figure 3. Hyperechoic image in the form of a mass, with uniform echogenicity, in the projection of the right adrenal gland, with well-defined and regular lobulated edges

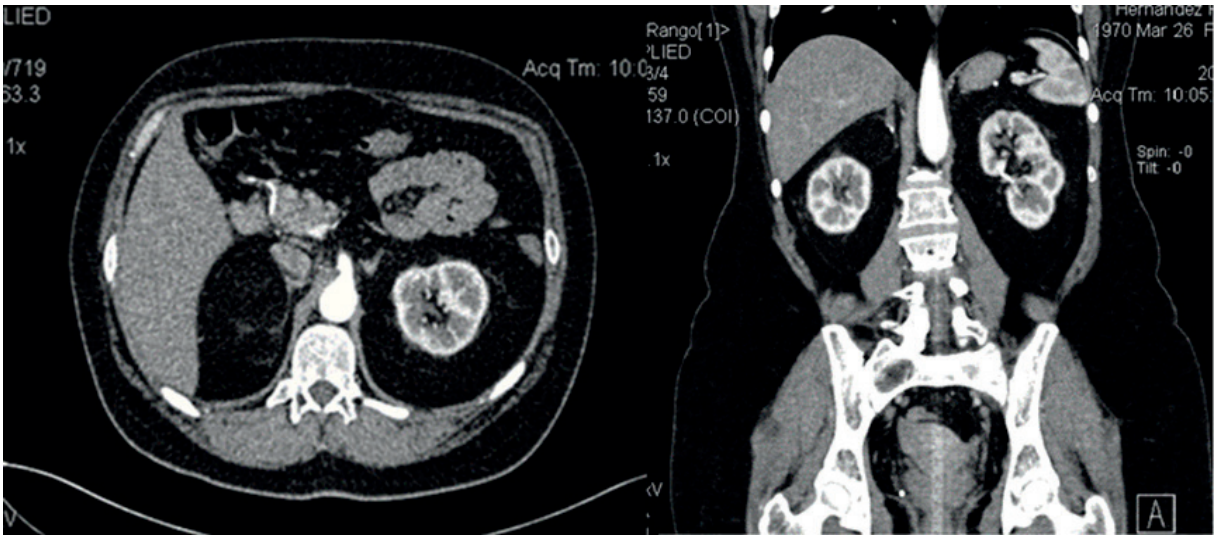

Figure 4. Unilateral adrenal myelolipoma. Abdominal tomography with IV contrast (axial section and coronal reconstruction)

This patient also underwent hormonal testing, which ruled out functionality. She is awaiting treatment for left renal lithiasis by nephrolithotomy and is therefore monitored periodically by ultrasound. No growth of the mass, endocrine dysfunction, or malignant transformation has been observed.

DISCUSSION

In both cases presented, the lesions reported were incidental findings on imaging, which allowed for an effective diagnosis of AM.

The technical quality of imaging studies, as well as the wide coverage of less sophisticated examinations, in our case ultrasound and CT scans, contribute to the increasingly frequent diagnosis of these lesions. This is reflected in the literature, which states that improvements in diagnostic techniques such as ultrasound, CT, and nuclear magnetic resonance imaging have made it possible to discover and establish a correct preoperative diagnosis, noting that the most accurate imaging method is CT.[3]

The imaging characteristics depend on the different proportions of fat, myeloid elements, hemorrhage, and calcification present.[7] On ultrasound, they appear as a hyperechoic mass at the level of the adrenal bed. When they are small, it is difficult to distinguish them from the adjacent adrenal fat. These tumors cause propagation velocity artifacts, demonstrating the fatty nature of this mass. They can be homogeneous or heterogeneous (due to the presence of hemorrhage inside them), and if the myeloid component predominates, they can be seen as isoechoic or hypoechoic. Sometimes calcifications can also be found inside them.[7] CT scanning is currently the gold standard and is used to confirm the diagnosis of adrenal myelolipomas and should be performed to confirm the ultrasound suspicion. Myelolipomas appear on CT scans as a lesion with well-defined edges, usually as an incidental adrenal mass, between 2 and 10 cm in diameter, although they generally measure less than 4 cm, with negative attenuation indicating fat (less than -20 to -100 HU), unilateral, although

in some studies reported in the literature, bilateral locations are observed, associated with endocrine diseases such as thyroid dysfunction, obesity, Cushing's syndrome, and Addison's disease, and about 20 % of tumors have punctate calcifications.[4,5,8] The identification of any amount of macroscopic fat on CT (-30/-100 HU) confirms the diagnosis of myelolipoma, without the need for additional imaging studies.[8]

MRI is useful in the diagnosis of this entity. On MRI, the fat is hyperintense on T1 and T2 spin echo sequences, and the hematopoietic tissue is isointense on T1 and moderately intense on T2. The fatty component of this tumor is hyperintense on T1-weighted sequences. The use of fat suppression on MRI confirms the diagnosis by demonstrating a loss of signal from the fatty component.[1,11]

The intensity of hemorrhage varies depending on whether the bleeding is acute or chronic. In addition, they have a pseudocapsule, which is the residual adrenal gland.[8]

Recent studies report that PET/CT with 18F-fluorodeoxyglucose (18F-FDG PET/CT) is used worldwide depending on the institutions that have this novel diagnostic technique and is indicated only in cases where it has not been possible to adequately characterize adrenal lesions using the conventional imaging studies mentioned above.[13] Its main use is in the identification of metastatic adrenal masses in the study of cancer patients.[3] In FDG-PET, most myelolipomas do not show greater FDG uptake than the background; however, some literature reports large myelolipomas with high FDG uptake.[12]

The differential diagnosis is made with different adrenal tumors that show adipose tissue, such as lipoma, liposarcoma, renal angiomyolipoma, adenoma, adrenocortical carcinoma with lipomatous metaplasia, as well as mature teratoma.[6,8,9,11]

Regarding the bilateral nature of the case, the following are noted as important in the differential diagnosis: malignant, primary, and secondary metastatic processes.[7]

Treatment for this type of tumor must be individualized, depending on the size and symptoms of the tumor, bearing in mind that most of these tumors are diagnosed incidentally.[8] Treatment may be conservative or surgical. When the tumor is small and asymptomatic, the treatment of choice is clinical surveillance and imaging monitoring for a period of 1 or 2 years with CT or MRI scans. Three fundamental elements indicate the need for surgery: the presence of clinical manifestations (abdominal pain, mass effect, urinary tract infections, and anemia secondary to rupture), any mass larger than 6 cm in diameter and tumor growth in two consecutive radiological studies (greater than one centimeter in 6 months), and the presence of irregular edges as well as changes in the density of the mass.[6] Other authors recommend surgical removal when the maximum diameter exceeds 10 cm (giant myelolipomas) due to the increased risk of bleeding.[3]

CONCLUSIONS

All radiologists should actively participate in the diagnosis of adrenal lesions using appropriate imaging techniques. They must be able not only to diagnose those that are conclusive based on their imaging presentation, but also to advise on the next step to be taken, allowing for the management of incidental lesions such as myelolipoma, a rare adrenal tumor that can present as an incidental adrenal mass and should be suspected in adrenal masses with a high fat content. CT was a useful diagnostic tool in our study. In the evolution of both cases, the AMs did not change in size, did not develop endocrine dysfunction, and did not undergo malignant transformation.

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CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

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