Diagnosis of adrenal myelolipoma by imaging and guided biopsy

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Abstract

Adrenal myelolipoma is a rare, benign, endocrinologically inactive, and asymptomatic tumour which is usually found incidentally at imaging or autopsy. Symptomatic tumours are very rare. We describe a case of adrenal myelolipoma where the diagnosis was made on the basis of radiological features and image-guided fine needle biopsy, without resorting to an operation.

Introduction

Adrenal myelolipomas are benign tumours of the adrenal cortex (1,2). Symptomatic myelolipomas are extremely rare (3,4). In the past, surgical exploration of these tumours was undertaken because of the suspicion of malignancy (5). Recent work has demonstrated the characteristic imaging features of these tumours on ultrasound and computed tomography (CT), making surgical resection unnecessary in the majority of the cases (2).

Case report

A 62-year old woman was referred to us with complaints of mild epigastric discomfort of a few weeks' duration. Physical examination did not reveal any abnormality. Ultrasound showed a well encapsulated, echogenic, right suprarenal mass 5.2 × 5.8 cm in size (Figure 1). The right kidney and the adjacent liver parenchyma were normal.

Figure 1. Ultrasound scan revealing an echogenic right suprarenal mass.

A CT scan of the abdomen revealed a well circumscribed, non-enhancing mass measuring 6 × 5.5 × 4 cm in the right suprarenal region (Figure 2). The lesion was inhomogeneously hypodense with fatty attenuation values. A coronal reformat was made, which revealed a right suprarenal mass and a normally excreting right kidney with well maintained borders (Figure 3). Biochemical evaluation confirmed the non-functioning nature of the tumour.

Figure 2. Contrast enhanced CT scan showing a large hypodense mass in the right suprarenal area.

Figure 3. Coronal, sagittal and oblique reformed images revealing right suprarenal mass with a normally excreting right kidney.

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On the basis of these findings a possible diagnosis of an adrenal myelolipoma was made. To confirm the diagnosis, a CT guided fine needle (18 gauge) biopsy was performed which was diagnostic of an adrenal myelolipoma. Since the patient did not have any symptoms related to this mass, it was deemed unnecessary to resort to surgical resection.

Discussion

Adrenal myelolipomas are asymptomatic tumours with a reported incidence varying from 0.03% to 0.8% (6). Rarely they may produce symptoms by virtue of their size, necrosis or haemorrhage within the tumour (3,4). The aetiopathogenesis is uncertain. The proposed theories include embolism of bone marrow cells, metaplasia of adrenocortical cells and development from embryonic bone marrow residues (7,8).

Ultrasound examination is helpful in the diagnosis because of its multiplanar imaging capability that helps to differentiate the echogenic lipomatous suprarenal mass from normal kidney. However, final diagnosis cannot be arrived at by sonography alone since other tumours may also be echogenic (9,10). On CT adrenal myelolipomas are seen as hypodense, non-enhancing lesions with fat attenuation values (6). However, if myelolipoma shows inhomogenous characteristics, CT cannot help in ruling out underlying malignancy and a fine needle biopsy should be performed (2). Histological examination helped us to rule out such possibilities as liposarcoma, retroperitoneal lipoma and other adrenal tumours.

In conclusion, ultrasound and CT can greatly facilitate the diagnosis of adrenal myelolipomas. We recommend that in an asymptomatic lesion, when characteristic imaging features are present, the patient should be followed up at six-monthly intervals. Image guided biopsy

should be performed in tumours with uncharacteristic features. Surgical exploration should be reserved for symptomatic patients or those with an uncertain diagnosis.

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