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Case Report
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A Giant Myelolipoma of the Right Adrenal Gland: A Case Report

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Abstract

Introduction: Adrenal myelolipoma is a rare nonfunctioning neoplasm of the adrenal gland, composed by hematopoietic tissue and fat cells, normally incidentalomas.

Case Report: A 56-year-old man had been subjected to CT-scan and MR that showed the presence of a huge solid mass, encapsulated in the right upper quadrant with mixed content and adipose tissue.

After laparotomy we found a giant mass, adherent to the liver with no signs of infiltration, including the right adrenal gland. After four hours of surgery we removed a well-capsulated 6 kilograms mass. The patient was discharged on postoperative day ten in good conditions after an uneventful course. The histological report shows an adrenal myelolipoma, constituted by cortical adrenal and fatty tissue, three lineages of hematopoietic elements and hemorrhagic areas.

Discussion: Myelolipomas are correlated with abdominal pain, hemorrhage or necrosis, but are often asymptomatic; usually unilateral, they can be bilateral or extra adrenal. It is hormonally inactive but it can coexist with other hormonally active tumors of the adrenal gland and it is associated with hypertension, atherosclerosis, diabetes mellitus, and other chronic conditions. CT scan and NRM are the best diagnostic option. Surgical treatment should be recommended only in symptomatic cases or for huge masses.

Conclusion: Clear diagnosis helps for exclude other condition, because surgical treatment is reserved to symptomatic cases and masses with a high risk of rupture. The treatment spectrum can be enlarged by a minimally invasive approach.

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Introduction

Adrenal myelolipoma is a rare nonfunctioning neoplasm of the adrenal gland, composed by hematopoietic tissue and fat cells in the context of normal adrenal tissue [1]. Normally it occurs as a incidentaloma with an autopsy incidence between 0.08% and 0.2% [1]. In some cases it can generate giant masses that can be mistaken for malignancies such as sarcoma or liposarcoma. Usually asymptomatic, it could cause abdominal pain; its rupture can lead to a life-threatening hemorrhage.

Myelolipoma are rare benign neoplasia and it is often difficult to discriminate which of these should be treated conservatively or surgically.

Case Presentation

We report the case of a 56-year-old man who came to our observation after being subjected to a cholecystectomy surgery at another hospital. The patient had been subjected to CT-scan that showed the presence of a huge mass on the right liver; he reported the onset of his medical history with abdominal pain localized in the right upper quadrant. He was also suffering from high blood pressure.

During hospitalization at our department, clinical examination showed the presence of a well-defined abdominal mass in the right hypochondrium. Then the patient underwent a MR that showed a solid mass, in the right retroperitoneum, sized 20 cm × 17 cm × 18 cm, encapsulated, with mixed content for the presence of adipose tissue.

The patient underwent right sub-costal laparotomy; we found a giant well-defined mass, adherent to the inferior margin of the liver but with no signs of infiltration; the neoplasia included the right adrenal gland.

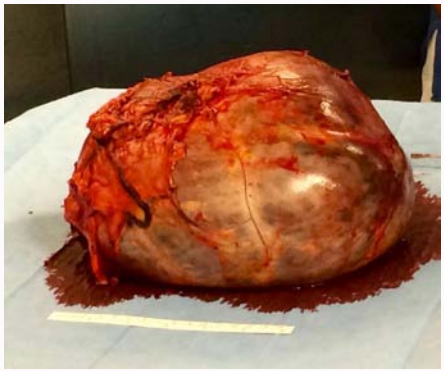

Figure 1: The resected myelolipoma.

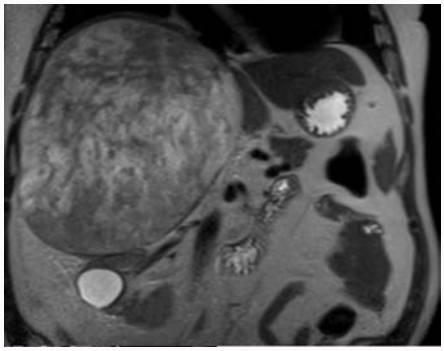

Figure 2: The mielolipoma at NMR.

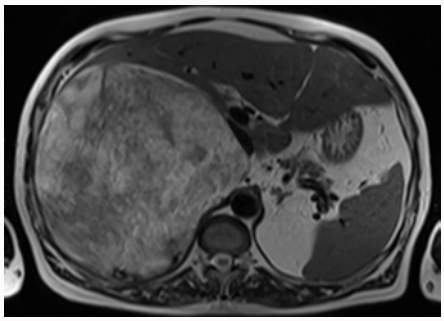

Figure 3: The mielolipoma at NMR.

The dissection was performed with care, following easily the cleavage planes, separating the mass from adjacent structures, the liver and the kidney. The surgery last four hours.

We removed a large mass of about 6 kilograms, with a well-capsulated smooth surface, inside which showed the presence of yellowish tissue (probably adrenal tissue) and hemorrhagic areas.

The patient spent the first postoperative day in Intensive Care unit, and then was admitted in our department. The postoperative course was uneventful with a gradual recovery of the intestinal channeling; the patient was discharged on postoperative day ten in good conditions.

The histological report shows the diagnosis of adrenal myelolipoma in a retroperitoneal mass of 23 cm × 22 cm × 16 cm, encapsulated, with a smooth surface; the tumor is found to be constituted by a fatty tissue in the context of which are located three lineages of hematopoietic elements; the mass was characterized by the presence of extensive hemorrhagic areas and typical cortical adrenal tissue.

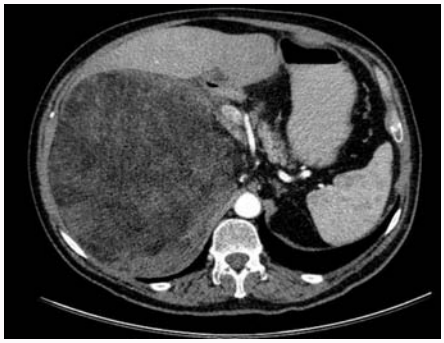

Figure 4: The mielolipoma at CT-Scan.

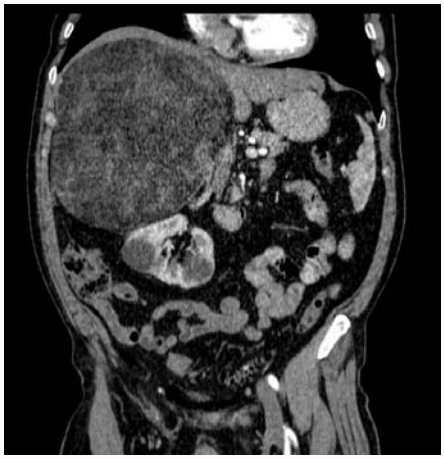

Figure 5: The mielolipoma at CT-Scan.

Discussion

Adrenal myelolipoma is a rare benign tumor with lipomatous and hemopoietic cellular tissue. It is usually an incidental finding on imaging or at autopsy with a incidence between 0.08% and 0.2% [1,2]. It is correlated with symptoms such as abdominal pain, retroperitoneal hemorrhage or necrosis, but is often asymptomatic [3]. It's usually unilateral but it can rarely be bilateral or extra adrenal: 15% of myelolipomas were found in sites like the retroperitoneum, presacral area, thorax, pelvis [4], renal, gastric, hepatic and spleen [5] (Figure 1).

This neoplasia is hormonally inactive but it can coexist with other hormonally active tumors of the adrenal gland as Cushing's syndrome [3], pheochromocytoma [6], or congenital adrenal dysplasia [7]. It seems to be associated with other medical conditions like hypertension, atherosclerosis, diabetes mellitus, and other chronic conditions [1,8,9]. CT scan is the best diagnostic option: On tomography, myelipomas are well-defined and encapsulated lesions of low-density tissue (less than 30 HU, as mature fat tissue); on NRM the neoplasia has an high signal intensity on T1-weighted images [1,8] (Figure 2, 3). Extra-renal angiomyolipoma, retroperitoneal lipoma, liposarcoma or leiomyosarcoma must be considered for differential diagnoses [8]. It's also important to exclude other benign neoplasia as pheochromocitoma and the endocrinal function of the mass with the appropriate biochemical studies [8].

However the lack of imaging criteria makes the diagnosis difficult, so the definitive response depends on histological o cytological report [8]. Fine-needle aspiration cytology under CT or ultrasound guidance is an easy and minimally invasive method to diagnose and categorize the various benign non-neoplastic diseases of adrenal gland as myelolipomas [2,10], but it must be performed carefully in order to avoid hemorrhagic complication or neoplastic cells dissemination in case of a malignant lesion [8].

Myelolipomas are usually small and asymptomatic neoplasia inside the adrenal gland, so the treatment is usually conservative with a recommended follow up every 1 or 2 years by a CT-scan [11] (Figure 4, 5). However they can grow as huge masses and become symptomatic: it was reported that a >10 cm mass shows a higher risk of developing in abdominal pain or in a rupture that can lead to a life-threatening hemorrhage [8,11]; a more recent review reported a rate of 17% of spontaneous rupture for a >6 cm mass [1]: In this scenario elective surgery could be recommended in order to prevent more severe symptom presentation, life-threatening progression and allow a definitive diagnosis [1].

Surgical treatment should be recommended only in symptomatic cases or for elective surgery in >6 cm masses [1,8,12]. In this view laparoscopic surgery could be a minimally invasive option for the treatment of huge myelolipomas. Some studies report that laparoscopic approach is recommended and tumor size did not preclude this indication even for adrenal lesion larger than 6 cm [1,13,14].

Conclusion

Myelolipomas are a rare condition, usually small and asymptomatic: A clear diagnosis is necessary in order to discriminate this neoplasia from other condition, because it can be often treated conservatively. Surgical elective treatment should be reserved to symptomatic cases and masses larger than 6 cm, where the risk of rupture is greater; the minimally invasive approach guaranteed by laparoscopic surgery allows to enlarge the treatment spectrum.

At this time a clear treatment protocol is still missing, due to the few cases described in the literature and the benign nature of this condition.

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