CLINICAL CASE

Hepatic PEComa: an unusual tumor in an infrequent location

PEComa hepático: un tumor inusual en una localización infrecuente

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Abstract

Perivascular epithelioid cell neoplasms (PEComas) are a tumor family defined as such just a couple of decades ago. They make an unusual group of neoplasms, which can appear in different locations of the organism. PEComas are usually considered to be benign tumors, but there are some histological features that make some subgroups suspicious of malignancy. The treatment of these tumors consist in their surgical resection, with no current effective complementary oncological treatment known. We present the clinical case of a woman that underwent surgery for a resection of a hepatic lesion labeled afterwards as a PEComa with malignant features.

Key words: *PEComa. Hepatic PEComa. Mesenchymal tumors. Perivascular epithelioid cell neoplasm.*

Resumen

Los tumores de células neoplásicas perivasculares epitelioides (PEComas) son una familia de tumoraciones caracterizada apenas un par de décadas antes. Componen un grupo inusual de neoplasias, que puede aparecer en distintas localizaciones del organismo. Por lo general, los PEComas se consideran tumores benignos, pero hay ciertas características histológicas que hacen de algunos subgrupos lesiones sospechosas de una malformación maligna. El tratamiento de estos tumores consiste en la resección quirúrgica, pero no existe tratamiento oncológico por completo eficaz. Se presenta el caso clínico de una mujer sometida a la resección de una lesión hepática con diagnóstico posterior de PEComa con rasgos de proceso maligno.

Palabras clave: *PEComa. PEComa hepático. Tumores mesenquimales. Neoplasia de células epitelioides perivasculares.*

Introduction

Perivascular epithelioid cell neoplasms (PEComas) constitute a recently classified family of tumors. The WHO considers them mesenchymal perivascular epithelioid cell tumors with distinctive histology and immunohistochemistry. They were grouped as a differentiated entity for the first time in the 1990s and were initially observed in clear cell lung tumors and angiomyolipomas. Subsequently, they have also been associated with lymphagiomyomatosis and a wide and diverse number of visceral and soft and bone tissue tumors. A connection between this family of tumors and tuberous sclerosis has also been observed.

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At the macroscopic level, PEComas usually evolve as non-infiltrative, growing masses and often with hemorrhagic foci within. They exhibit large calibre and tortuous vessels in the bulk of the neoplasm.

In microscopic terms, the presence of epithelioid cells is typical and they are always arranged in the vessel wall muscle layer, compromising its lumen and replacing normal smooth muscle tissue and collagen. In addition, spindle cells or cells with lipid accumulation can be observed, which sometimes makes differential diagnosis versus other tumors difficult as, for example, smooth muscle tumors, carcinomas and adipocytic tumors[1].

Recently, a trend has been observed for certain PEComas to turn into malignant malformations given that they have the ability to infiltrate and metastasize. A series of criteria have been established to suspect malignant nature, including tumor size > 5 cm, infiltrative growth pattern, presence of a large hyperchromic nucleus, tumor necrosis and mitotic activity > 1/50 replications per field. PEComas with two or more of these characteristics would be considered malignant[2].

Given their low incidence, optimal treatment of this type of tumors remains unknown.

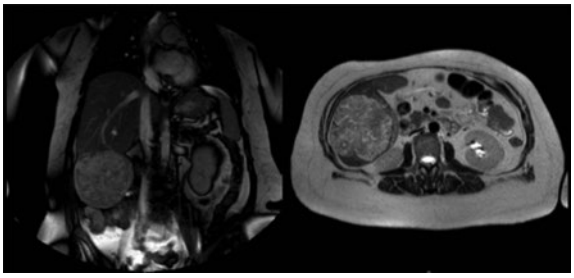

Figure 1. *Lesion on magnetic resonance imaging.*

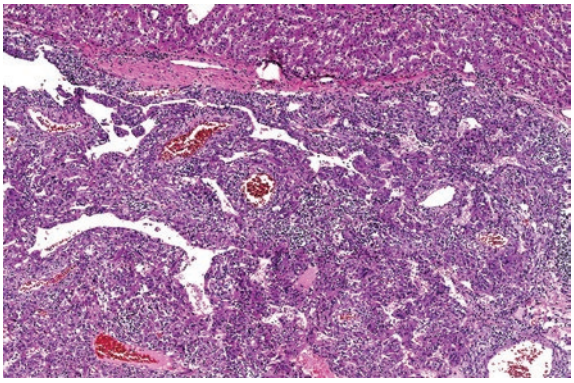

Figure 2. *PEComa image on microscope (4x), stained with hematoxylin-eosin.*

Clinical case

We present the case of a 50-year-old diabetic woman, with poor glycemic control and dyslipidemia, who was admitted to the internal medicine department with a 10-day history of high fever, with general status repercussions (bacteremia), right renal fossa pain and voiding symptoms. Within this context, since acute pyelonephritis of obstructive cause was suspected, an abdominal ultrasound was requested, which identified a liver space-occupying lesion (SOL) of 8.9 x 9.4 cm at segment VI. This SOL was described as isoechoic, rounded and well defined with a thin hyperechoic capsule, with hypodense punctate images throughout its thickness, and clear intralesional vascularization.

During admission, a complete examination of the lesion was carried out by means of dynamic liver magnetic resonance imaging (MRI) (Fig. 1), which delineated the lesion and determined that it had characteristics consistent with a liver adenoma measuring 9.6 x 9.6 x 9.3 cm. Complementary colonoscopy, gastroscopy, and computed tomography (CT) did not detect other alterations. The authors' unit assessed the patient and scheduled her for laparoscopic segment VI hepatectomy, given the size of the lesion, and the risk of bleeding and of malignancy, which was carried out uneventfully.

The patient was discharged at fifth postoperative day without any complications. The pathological anatomy result showed the existence of a PEComa (monotypic epithelioid angiomyolipoma) larger than 10 cm, with the presence of extensive areas of necrosis in its interior and absence of vascular permeation. At the microscopic level, the neoplasm was separated from the liver by a fibrous pseudocapsule, and was made up of polygonal, sometimes spindle-shaped epithelioid cells, and arranged in a perivascular fashion. Said cells had abundant eosinophilic cytoplasm, occasionally clear, with large and atypical vesicular nuclei, and a predominant nucleolus (Figs. 2 and 3), which are typical signs of this type of tumor. Immunohistochemistry was also consistent with PEComa: positive for vimentin, AML, HMB45 (Fig. 4) and Melan-A (Fig. 5), and negative for S100 protein and desmin. In turn, proliferative index, as determined by Ki67, was 10%.

Given the tumor characteristics (tumor size > 10 cm, extended areas of necrosis and expansive borders),

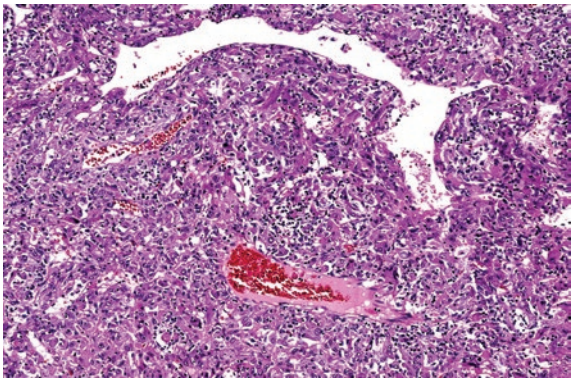

Figure 3. *Image on microscope (10x) of PEComa stained with hematoxylin-eosin.*

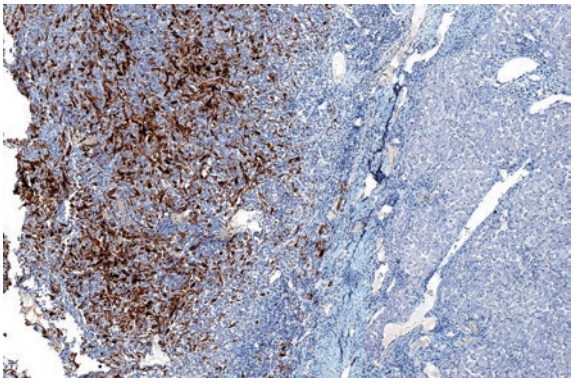

Figure 4. *Immunohistochemistry study (4x) positive for smooth muscle markers (HMB45).*

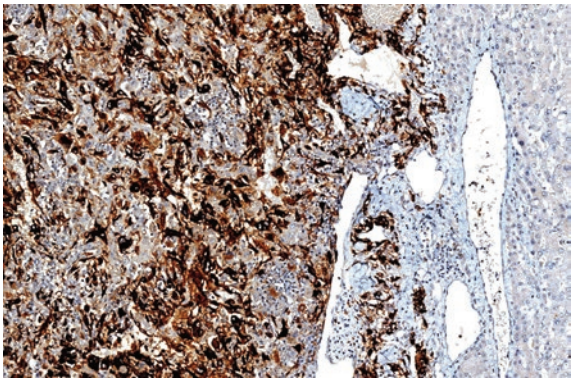

Figure 5. *Immunohistochemistry study (10x), positive for melanocytic markers (MELAN-A).*

it had poor prognostic factors. Close follow-up of this patient on an outpatient basis was planned with imaging tests every six months for the first two years, and annually thereafter.

Discussion

Hepatic PEComas are a rare entity. Currently, there are only 24 references to this tumor in medical publications, and around 33 reported cases, out of which only four had characteristics of malignancy and even distant metastases. Although these tumors can occur in any anatomical location, they are usually found in the kidneys or uterus. They appear to predominate in female patients of between 30 and 50 years of age, although they can be diagnosed at any age.

PEComa diagnosis prior to surgery is highly difficult due to the similarity of its appearance on imaging tests to other liver lesions, particularly adenoma. Diagnosis is almost always incidental in the surgical specimen, since they do not cause symptoms. If there is preoperative suspicion, performing a biopsy of the liver lesion is advisable[3,4].

Currently, little is known about the treatment of this type of tumor, owing to its rarity. Most PEComas are considered benign. However, there are certain histological characteristics that lead to suspect a malignant nature in neoplasms of this family of tumors. In this risk subgroup, surgical resection of the lesion with disease-free margins and close monitoring are indicated to document possible local relapses and even metastatic lesions.

In case a preoperative diagnosis is established and a large tumor (initially unresectable) is identified, new neoadjuvant treatments are currently being considered in order to favor the possibility of resection. Administration of an mTOR inhibitor such as sirolimus has been shown to be effective in angiomyolipomas and so far it has been used in one case of hepatic PEComa in order to achieve R0 resection, with good results[5-7]. Another option under investigation is neoadjuvant radiation therapy. In the work by Kirste et al., reducing a hepatic PEComa tumor size was possible by administering eight sessions of stereotactic radiotherapy with 7.5 Gy, without complications[8].

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Conflict of interests

The authors declare that they have no conflicts of interest.

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Ethical disclosure

Protection of people and animals. The authors declare that no experiments were performed on humans or animals for this research.

Confidentiality of data. The authors declare that they have followed the protocols of their work center on the publication of patient data.

Right to privacy and informed consent. The authors have obtained informed consent from the patients and/or subjects referred to in the article. This document is in the possession of the corresponding author.

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