Is a benign meningioma always an indolent tumor?

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Abstract

Meningiomas are considered to be slow-growing tumors that compress the brain without invading it. The development of metastases is uncommon, with a predilection for the lungs, liver, lymph nodes, and bone. We report the case of a 58-year-old man, diagnosed with a solitary pulmonary nodule in the left lower lobe that was resected through a thoracotomy. The pathology revealed lung metastases of an undiagnosed meningothelial meningioma. The evolution of the patient’s case, the second case in the literature of this kind of benign tumor that has developed pleural metastases, was unsatisfactory.

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1. Introduction

Meningiomas account for 15% of primary brain tumors [1]. They are considered to be slow-growing tumors that compress the brain without invading it. Despite having a good prognosis, they sometimes develop metastases (0.1%), with a predilection for the lungs, liver, lymph nodes, and bone [2].

2. Case report

We report the case of a 58-year-old man with a history of smoking and brucellosis. In December 1998, during the preoperative work-up for a right vitrectomy for a traumatic cataract, he was diagnosed with a 29-mm diameter solitary pulmonary nodule in the left lower lobe (LLL). The patient underwent a posterolateral thoracotomy with limited resection.

The histomorphology showed a benign fusocellular tumor. Immunohistochemically stains revealed strong positivity for epithelial membrane antigen, vimentin, and S-100 protein, and negativity for AE1/AE3 and CD34. Furthermore, the proliferative component, determined using monoclonal antibody Ki-67, was studied, resulting in a positive value of <5%. The lesion was compatible with a benign meningothelioma-like tumor type (Fig. 1). When informed about the pulmonary lesion histology, we performed a brain computed tomography (CT)-scan, on which no intracranial masses were identified, so we considered this tumor to be a likely primary pulmonary meningioma.

The patient continued to undergo review with chest CT, and in June 2002, a LLL pulmonary lesion of 15 mm in size was detected, probably of residual nature. In January 2003, in an extension study with scintigraphy in response to generalized bone pain, the patient was diagnosed with a right parietal meningioma, which we decided to treat conservatively with anti-convulsants and non-steroidal anti-inflammatory drugs.

In August 2004, we observed a size increase of the lesion that had been followed since 2002 was found. Thoracotomy...
was performed, which identified a mass in the upper segment of the LLL, millimeter-sized subpleural multiple implants, and multiple tumor-like lesions on the posterior mediastinal pleura. The lesion was resected in an atypical manner. Similarly, all accessible implants in a pleural location were resected. The pathological analysis of all lesions was compatible with metastases from a grade I meningothelial meningioma, according to the WHO classification.

Since 2007, the patient’s lung and pleural metastatic disease has progressed. Currently, the patient presents two intracranial extra-axial tumors in a right frontal lobe location, which suggest a local recurrence (Fig. 2d) and multiple bilateral pulmonary (Fig. 2a,b), hepatic, and pleural nodules (Fig. 2c), all compatible with metastatic spread.

3. Discussion

Meningiomas have a predilection for females (2:1 ratio). In males, they are more frequently malignant and are more likely to give rise to metastases in the long-term [1]. Extracranial metastases are exceptional, being well described in malignant meningiomas (5%). They may even appear 15 years after resection of the primary tumor. In benign cases, it is also possible to have metastatic spread [3]. What is striking in this case is the presence of extracranial metastasis of a benign tumor that were diagnosed years before the primary lesion.

The lung is the most common location for metastasis (61%) and surgery the treatment of choice, as long as it is oncologically possible. The presence of spread to the pleura is extremely uncommon in meningothelial meningiomas, this being only the second case reported in the literature. For this kind of benign tumor, only 15 cases of extracranial metastasis were found in the literature [4].

There are no clear criteria for predicting the risk of local recurrence or distant metastases. Nevertheless, some histological parameters that seem to be related to tumor growth potential could be relevant [2]. A previous craniotomy, venous sinus invasion, local recurrence, papillary morphology, and malignant histology might be predictors of systemic dissemination [2].

After discarding the possibility of an intracranial location for the primary we considered the lesion to be a primary pulmonary meningioma. On reviewing the evolution of the case, we believe that follow-up by brain CT scanning would have been the right choice.

This case highlights the possibility that a benign tumor can cause distant disease, even before diagnosis of the primary. We suggest close monitoring of these patients in order to early discover possible metastases.

References