

## Pulmonary Metastasis of Basal Cell Carcinoma of the Skin

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Basal cell carcinoma of the skin is a common neoplasm usually considered benign. Rarely, distant metastases can involve organs such as the brain, lung, and bone. We report the case of a 41-year old man diagnosed with lung metastasis secondary to basal cell carcinoma. Given that the development of metastasis is associated with short survival and the therapeutic arsenal is scarce, we emphasize the importance of long-term follow up of such patients.

**Key words:** *Skin cancer. Lung metastasis. Metastatic basal cell carcinoma.*

### Metástasis pulmonares de un carcinoma basocelular cutáneo

El carcinoma basocelular cutáneo es una neoplasia común, que usualmente se considera benigna. Las metastásis a distancia son muy raras y pueden afectar a órganos como el cerebro, pulmón y hueso. Publicamos el caso de un varón de 41 años diagnosticado de metástasis pulmonares secundarias a un carcinoma basocelular recidivante. Dado que el desarrollo de metástasis se asocia a una corta supervivencia y que el arsenal terapéutico del que disponemos es escaso, queremos destacar la importancia que tiene el seguimiento a largo plazo de estos pacientes.

**Palabras claves:** *Carcinoma cutáneo. Metástasis pulmonares. Carcinoma basocelular metastático.*

### Introduction

Basal cell carcinoma is a common skin neoplasm that is characterized by slow growth and local aggressiveness. The natural history of this cancer is one of recurrence although distant metastasis may sometimes occur. Long-term follow up is advised as metastasis carries a poor prognosis with a mean survival time of approximately 10 months.

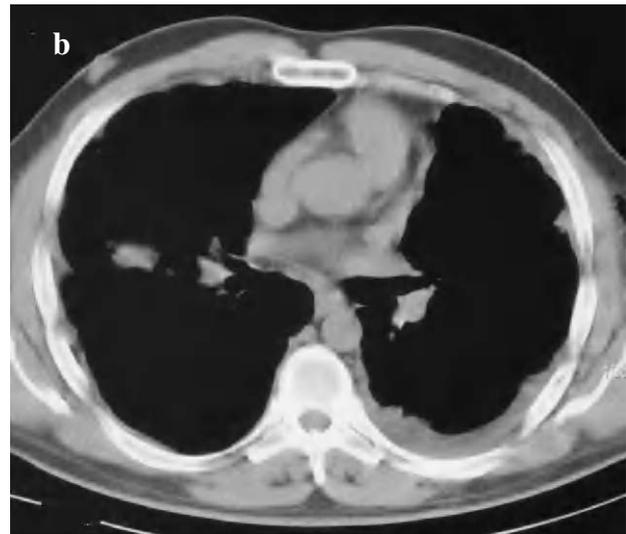
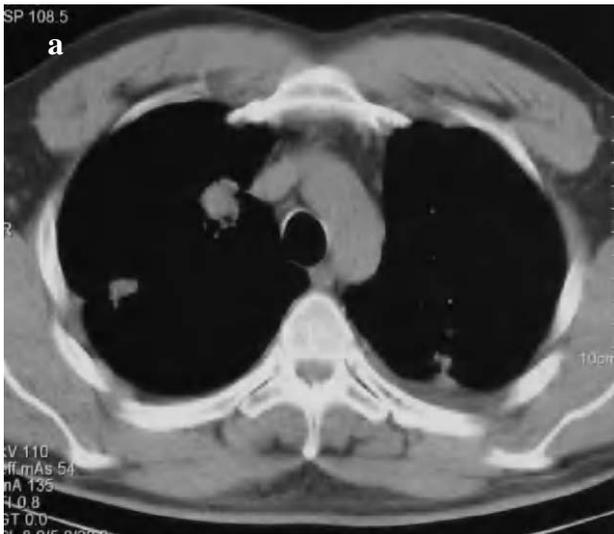
### Case Description

The patient was a 41-year old man, a smoker (18 pack-years), with a history of surgery to remove a basalioma from his back in 1990 followed by several recurrences (1991, 1993, and 1994). He was admitted from the emergency department of our hospital in February of 2003 for study of a pulmonary nodule visible on an x-ray. The patient reported having normal breathing up until the previous month when he developed a pleuritic pain in the left side of the chest, cough with scant whitish sputum, and progressive dyspnea on exertion. During this period the patient lost 2 to 3 kg. During the last week he had also developed a temperature of up to 37.4°C, affecting his general state. Upon physical examination no skin or mucosal defect or adenomegaly was

observed in accessible areas. Lung sounds revealed hypoventilation on both sides, but mainly on the left side, consistent with the presence of fluid. The physical exam was otherwise unremarkable. A chest x-ray confirmed bilateral pleural effusion and nodular images in both lung fields. The results of basic biochemical tests, a complete blood count, and coagulation tests were normal. The sputum smear test, determination of autoantibodies (antinuclear antibodies, antiproteinase-3 antibodies, and antimyeloperoxidase antibodies), pneumococcus and *Legionella* antigen tests in urine, and human immunodeficiency virus serology were all negative. Lung function tests showed an evident restrictive pattern: forced vital capacity (FVC), 1.42 (32%); forced expiratory volume in 1 second (FEV<sub>1</sub>), 1.08 (30%); FEV<sub>1</sub>/FVC, 76%; carbon monoxide diffusing capacity (DLCO), 16.1 (53%); and DLCO per unit of alveolar volume, 6.38 (108%). Results from a diagnostic thoracentesis revealed a serosanguineous mononuclear-predominant pleural exudate (6500 cells; pH, 7.33; glucose, 91.5 mg/dL; proteins, 5.4 g/dL; lactate dehydrogenase, 1163 U/L; and adenosine deaminase, 24 U/L). Cytology was negative for malignancy. A high resolution computed tomography scan showed bilateral pleural effusion along with multiple pulmonary nodules of varying sizes, some spiculated and others well defined. No affected mediastinal lymph nodes were noted (Figures 1a and 1b). Bronchoscopic findings were normal, and samples obtained for cytology were negative for malignancy. A transbronchial biopsy of the right upper lobe (posterior segment) was histologically inconclusive. It was decided to perform a radiologically guided fine-needle aspiration of one of the larger and more

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Figures 1a and 1b. Chest computed tomography scans. Pulmonary nodules in both lung fields and a bilateral pleural effusion. No diseased mediastinal lymph nodes are visible.

accessible nodules located in the right upper lobe; cytology indicated a chondroid hamartoma. Because test results had not yielded a specific diagnosis, a thoracotomy was carried out to obtain open-lung biopsy samples. Histology detected poorly differentiated squamous (epidermoid) carcinoma cells. Immunohistochemical assays confirmed the metastatic origin of the nodules. Pathology compared the samples with skin biopsies taken from the patient on previous recurrences, and it was confirmed that the samples were of a similar histological subtype. A pathologist from another hospital who was unfamiliar with the case was consulted to review the biopsy report; that pathologist agreed with the final diagnosis of metastatic basal cell carcinoma. During this time the patient's clinical picture progressively deteriorated. Broad-spectrum chemotherapy was started, but the patient did not respond to or tolerate the treatment and died 7 months after diagnosis.

## Discussion

The incidence of metastasis in basal cell carcinoma, or basalioma, is around 0.03%. Three hundred cases are reported in the literature.<sup>1</sup> Lattes and Kessler<sup>2</sup> established the diagnostic criteria for metastatic basal cell carcinoma: *a*) the primary lesion should arise in the skin and not in the mucous membrane; *b*) the metastasis should be distant and not a consequence of a direct extension; and *c*) the primary lesion and the metastasis should have a similar histological pattern. Basal cell carcinoma is more common in middle-aged men. The period of time between the appearance of the primary lesion and the development of metastasis is around 10 years. The literature reports a mean survival time of 10 months.<sup>3</sup> The survival time of our patient was slightly less because of the delay in diagnosis. Various factors have been associated with high metastatic potential.<sup>4-6</sup> Size and depth of the primary lesion are the main factors. Tumors greater than 3 cm in diameter have a

2% incidence of metastasis and/or death. Incidence increases to 25% in lesions greater than 5 cm in diameter and to 50% in those greater than 10 cm. Metastatic lesions usually invade inward towards subcutaneous tissue or muscle. Location in the head and neck (accounting for 75%-85% of basal cell carcinomas), and especially those around the ear, are the ones most often associated with metastasis, perhaps because the skin is thinner and blood vessels are more highly concentrated there. Prior radiotherapy predisposes to distant metastasis. Histological types of basalioma include solid, cystic, invasive or infiltrative, and sclerosing—the last 2 associated with a high risk of metastasis.<sup>7-9</sup> Recurrence of the primary lesion in spite of appropriate treatment, as in the case we report, or incomplete resection of the primary lesion (positive surgical margins) are also risk factors. Metastasis may spread through either the lymph nodes or the bloodstream. Nearby lymph nodes are the most common site of metastasis, followed by the lung, bone, or other organs.<sup>10-12</sup>

Most basal cell carcinoma cases are resolved through simple resection.<sup>5</sup> Often recurrences are extremely aggressive and require wide resections and radio- or photodynamic therapy.<sup>7</sup> Treating metastatic disease presents numerous problems due to the presence of multiple lesions at the time of diagnosis. Different therapeutic regimens have been reported with varying results.<sup>11</sup> Surgery, whenever possible, is the treatment of choice as it achieves a higher survival rate. Chemotherapy is the second choice: cisplatin-based combinations lead to better results.<sup>13,14</sup> Nevertheless, treatment is eminently palliative. Our patient presented in poor general health status, and tolerance of chemotherapy was poor when treatment was started. Palliative care was therefore the sole treatment prescribed.

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