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Cutaneous metastases revealing a second hidden neoplasm

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To the Editor:

Lung adenocarcinoma is the most common primary lung cancer. It falls under the umbrella of non-small-cell lung cancer and has a strong association with previous smoking [1]. Although incidence and mortality have declined, it remains the leading cause of cancer death.

A 51-year-old man, non-smoker, presented with an ulcerated erythematous nodule growing for three months on the occipital region. It measured 3cm in diameter, was painless, and exhibited occasional bleeding (**Figure 1**). He denied previous trauma. He also had a 4-month history of muscle and bone pain, weight loss, and dyspnea.

He had a history of a left fronto-parietal oligoastrocytoma excised surgically 12 years before, which was suspected and diagnosed owing to the patient's neurologic symptoms at that time (headache and seizures). After the surgery he had regular follow-up in the oncology department, but disease progression was detected on brain MRI in 2013 and 2017; the patient was treated with temozolomide in those years. As the disease progressed despite this therapy, he was treated with intensity-modulated radiation therapy in 2018. He remained on active surveillance until March 2021, when brain MRI and PET-DOPA once again detected new activity. He was treated with procarbazine, lomustine, and vincristine for 6 months. He had a routine brain MRI the week before the skin surgery, which revealed two new millimetric foci in the frontal cortex suspected of oligoastrocytoma recurrence. Accordingly, the general symptoms previously described were attributed to chemotherapy toxicity.

The patient was evaluated in the dermatology clinic and excision of the occipital lesion was performed. Histopathologic analysis revealed the skin extensively infiltrated by a malignant neoplasm with glandular differentiation (**Figure 2A**). Diffuse mitoses were observed. The immunohistochemical study revealed immunoreactivity for thyroid

Figure 1. *An erythematous nodule on the occipital region, measuring 3cm in diameter.*

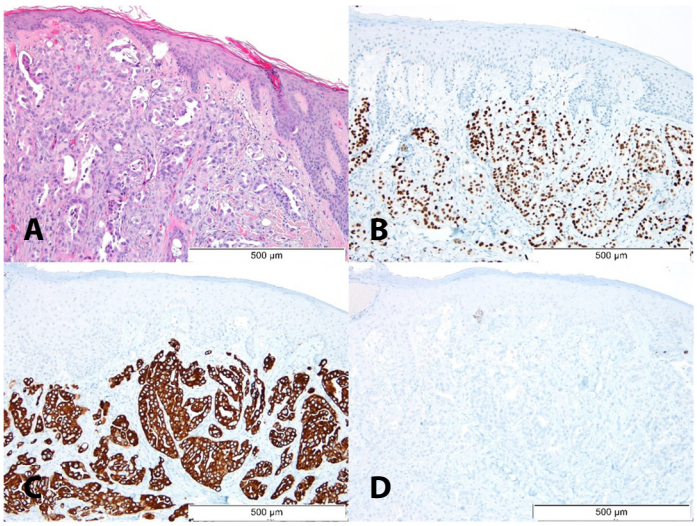

Figure 2. ***A)*** *Histological examination of the skin biopsy revealed extensive dermal infiltration by a malignant neoplasm with glandular pattern. H&E, 100×.* ***B)*** *Immunohistochemical detection of thyroid transcription factor 1, 100×, and* ***C)*** *cytokeratin 7, 100×, were observed in the neoplastic cells,* ***D)*** *in the absence of staining for cytokeratin 20, 100×.*

transcription factor 1 (**Figure 2B**), cytokeratin 7 (**Figure 2C**), and epithelial membrane antigen; there was absence of cytokeratin 20 expression (**Figure 2D**). An anatomopathological diagnosis of cutaneous metastasis of adenocarcinoma with immunohistochemical profile suggestive of pulmonary origin was made.

The patient underwent staging with whole-body computed tomography, which revealed a 20×16mm nodule in the right upper lobe compatible with primary lung neoplasm, along with other minor lesions reflecting a pattern of miliary dissemination. There were also small focal hepatic nodules compatible with metastasis and signs of diffuse bone metastasis. The diagnosis of lung adenocarcinoma stage IV with lymph node, liver, bone, skin, and likely brain metastasis was established. The patient was proposed to initiate pembrolizumab but did not begin therapy as he was admitted to the hospital with a pulmonary infection and embolism and died two months after the diagnosis due to these complications.

Cutaneous metastases from visceral malignancies are uncommon and found in only 0.7-9% of all cancer patients [2,3]. Most occur in cases of breast, lung, and colon cancer. Although rare, this entity should remain in a clinician's differential diagnosis. Skin metastases are commonly seen over the chest and abdomen, followed by the scalp, head and neck, extremities, and back [4]. In most cases, cutaneous metastasis develops after initial diagnosis of the primary internal malignancy and late in the course of the disease. In very rare cases, skin metastasis may occur at the same time as or before the primary cancer is detected and this typically signifies a poor prognostic factor for an aggressive underlying malignancy [5]. Cutaneous metastasis in lung cancer is associated with a poor prognosis and despite the combination of radiotherapy and chemotherapy, patients have an average survival ranging 3-6 months in most studies [6].

The occurrence of lung carcinoma in a patient who has a cerebral glioma appears to be quite rare. Few cases have been described in the literature of patients with cerebral glioma and tumor-to-tumor metastasis from a lung adenocarcinoma, a phenomenon in which a metastatic donor tumor establishes a secondary cancer in another tumor that serves as a recipient [7-10]. Another case like ours was reported, but the double primary neoplasms were synchronous and the malignant astrocytoma was discovered at autopsy [11].

Although the patient had a regular follow up in the oncology department, his nonspecific symptoms were understandably wrongly attributed to chemotherapy but were general symptoms of lung adenocarcinoma. Furthermore, the lesions detected on brain MRI suspected to be oligoastrocytoma recurrence were in fact lung cancer metastases. The skin, as an accessible organ, provided important information for diagnostic clarification and allowed establishment of an unexpected diagnosis, highlighting the importance of dermatology consultation in the evaluation of skin lesions.

Potential conflicts of interest

The authors declare no conflicts of interest.

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