

## What Is Your Diagnosis?



A 79-year-old man presented with asymptomatic, rapidly growing lesions on the scalp (top) and chin (bottom).

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The authors report no conflict of interest.

## The Diagnosis: Cutaneous Metastases From Non-Small Cell Lung Carcinoma

A 79-year-old man presented with 2 asymptomatic, rapidly growing, indurated, partially ulcerated, and crusted nodules on the scalp (Figure 1) of 2 months' duration, as well as one smaller similar nodule on the chin (Figure 2) of 1 month's duration. He was referred to our clinic because the nodules gradually enlarged despite a 1-month oral and topical antibiotic treatment regimen. There was no other relevant medical history and the patient was otherwise in good health. Biopsy results of the cutaneous scalp lesion revealed extensive infiltration of the dermis by a poorly differentiated carcinoma without connection to the adjacent epidermis (Figure 3A). The neoplastic cells showed pleomorphic hyperchromatic nuclei, atypia, and mitoses (Figure 3B). Although our patient did not report any constitutional symptoms such as weight loss, fever, cough, or dyspnea, a chest radiograph was performed and revealed a mass in the right lobe (Figure 4). Subsequent computed tomography and bronchoscopy showed a primary non-small cell lung carcinoma that was inoperable and the patient was treated with chemotherapy.

Cutaneous metastases occur in approximately 0.7% to 9% of patients with malignant disease.<sup>1</sup> Cutaneous metastases of lung cancer are uncommon and rarely are the presenting clinical manifestation of the disease. Approximately 1% to 12% of cases of lung cancer metastasize to the skin, and most cutaneous metastases in males are of pulmonary origin.<sup>1</sup>

Reported clinical forms of cutaneous metastases of lung cancer include solitary or multiple nodules, plaques, and an ulcerative lesion with zosteriform distribution. There is a predilection for the chest, head, and scalp.<sup>2,3</sup>

Histologic characteristics of cutaneous metastases from lung cancer include adenocarcinoma in 30% of cases, squamous cell carcinoma in 30%, and poorly differentiated carcinoma in the remaining 40%.<sup>1</sup>

Cutaneous metastases mainly occur near the primitive carcinoma. Distant cutaneous metastases involving the scalp can result from hematogenous or lymphatic spread and are considered a worse prognostic sign than cutaneous metastases in proximity with the primary tumor.<sup>2,4</sup> Cutaneous metastases, especially from a carcinoma of the lung, are always considered an ominous prognostic sign. Median survival is 2.9 months.<sup>4,5</sup>

In general, metastatic cutaneous tumors may present as rapidly growing, firm nodules; erythematous plaques simulating infections, such as leishmaniasis; or sclerodermatous plaques simulating cicatricial diseases.<sup>6,7</sup> The differential diagnosis of cutaneous tumors of the scalp also includes squamous cell carcinoma, primary adenoid cystic carcinoma, eccrine porocarcinoma, primary cutaneous mucinous carcinoma, and benign cysts or pyogenic granuloma.<sup>8-12</sup> Primary adenoid cystic carcinoma is a rare aggressive subtype of sweat gland carcinomas and predominantly affects the scalp. Biopsy results demonstrate tubules, ductular structures, and solid nests, as well as islands filled with eosinophilic granular material. The ducts

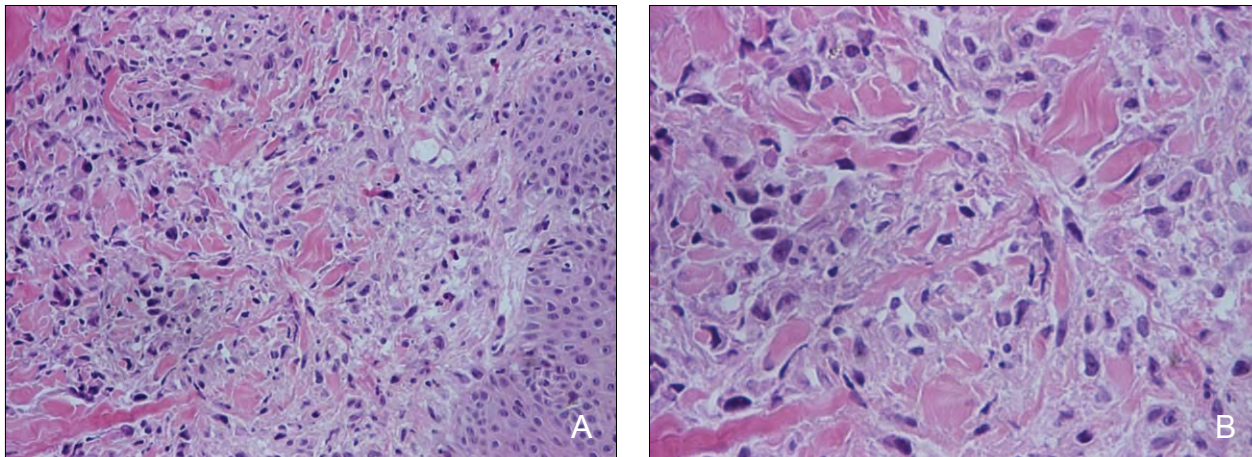


**Figure 1.** An ulcerative crusted nodule on the scalp.



**Figure 2.** An erythematous ulcerative nodule on the chin.





**Figure 3.** Extensive infiltration of the dermis by a poorly differentiated carcinoma without connection to the adjacent epidermis (A)(H&E, original magnification  $\times 40$ ). Atypical cells with abnormal pleomorphic nuclei infiltrating the collagen bundles were present (B)(H&E, original magnification  $\times 400$ ).



**Figure 4.** A chest radiograph revealed a mass in the right lobe.

are highlighted by a polyclonal carcinoembryonic antigen showing their eccrine differentiation. Diagnosis is confirmed with immunohistochemistry as well as positive periodic acid–Schiff stain and Alcian blue stain.<sup>8</sup> Eccrine porocarcinoma is a rare malignant sweat gland tumor that is derived from the intraepidermal portion of the eccrine gland.<sup>9</sup> It is most commonly found on the lower extremities, followed by the head, scalp, upper extremities, trunk, and abdomen. It may present as a nodule with ulceration and rapid growth and may metastasize. Biopsy, carcinoembryonic antigen, and immunohistochemistry confirm diagnosis.<sup>9</sup> Primary cutaneous mucinous carcinoma is histologically characterized by nests of epithelial cells floating in lakes of extracellular mucin.<sup>11,12</sup>

Clinical features that may point to the diagnosis of cutaneous metastases include the nonresponse

of cutaneous lesions to proposed treatments as well as the induration and rapid growth of the nodules.<sup>13</sup> Interestingly, systemic findings are not always present, as in our patient, and cutaneous lesions may be the only sign of an occult internal cancer. Because patients themselves cannot easily examine their scalp, physicians should conduct a meticulous scalp inspection and palpation when screening for cutaneous or internal cancers.<sup>13</sup>

Treatment of cutaneous metastases from an internal cancer should be aimed against the primary tumor. Treatment options include chemotherapy<sup>7</sup> (as in our patient), hormonotherapy (for carcinoma of the breast), or palliative radiotherapy.<sup>14</sup>

For patients with rapidly enlarging skin nodules, dermatologists should maintain a high index of suspicion, as diagnosis of a carcinoma arising from internal organs may be first established by recognition of the cutaneous metastases. In these cases, a thorough examination of the patient is warranted to prevent misdiagnosis.

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