

Single cutaneous nodule as the first sign of lung cancer: a rare presentation

Lung cancer is the most common cancer among men in India, with an incidence of 9.2%,¹ and one of the major causes of cancer-related mortality in men. Tobacco smoking, atmospheric pollution, and certain occupational factors are the major etiologies of the increasing burden of lung cancer. Most patients in whom carcinoma of the lungs is diagnosed are habitual smokers and older than age 40.²

Patients with lung cancer commonly present with chest complaints, such as dyspnea, cough, chest pain, and hemoptysis. Rarely, patients present with extrapulmonary intrathoracic symptoms (hoarseness, superior vena cava syndrome, Horner's syndrome, and dysphagia) or symptoms due to distant metastases, such as bone pain, pathologic fracture, headache, hemiplegia, and epilepsy. Presentation of lung cancer with cutaneous metastasis is extremely rare.

Case report

A 50-year-old man presented with a small, nodular lesion over the scalp of 3 months' duration. Other symptoms included hoarseness, cough, breathlessness, intermittent hemoptysis, and weight loss during the previous 6 months, for which he was on antituberculous drugs prescribed by his family physician. He had a history of smoking 60 packs of cigarettes a year and no past or family history of tuberculosis.

Clinical examination revealed a middle-aged, emaciated man with pallor, decreased air entry in the left mid zone on auscultation, and left

vocal cord palsy on indirect laryngoscopy. Thorough skin examination revealed a single, well-defined, erythematous, firm, nontender, 1 × 1 cm² nodule over the parietal region of the scalp. Fine-needle aspiration cytology from the lesion was suggestive of metastatic adenoid cystic carcinoma (Figure 1), and he was referred to an oncologist. Routine blood tests were within normal limits except for anemia (hemoglobin = 9 g/dL). A chest x-ray showed homogenous opacity in the left mid zone, and CT of the thorax was suggestive of bronchogenic carcinoma with mediastinal lymphadenopathy (Figure 2). CT-guided biopsy of the lung lesion revealed adenoid cystic carcinoma. Ultrasonography of the abdomen was normal. A clinical diagnosis of stage IV lung cancer was made.

The patient was started on a regimen of cisplatin (100 mg/m² on day 1) and gemcitabine (Gemzar; 1,400 mg/m² on days 1 and 8) repeated every 21 days. He tolerated chemotherapy well except for grade 1 myelosuppression, which required conservative therapy. After 3 cycles of chemotherapy, the scalp lesion regressed completely, and the primary lung lesion responded well radiologically. The patient is currently on chemotherapy.

Discussion

Cutaneous metastases occur in 0.7%–9.0% of all patients with cancer.³ Skin involvement occurs in about 5% of patients with cancer, according to a study by Lookingbill et al,⁴ but in only 1.3% at the time of diagnosis and in only 0.8% as a chief complaint. The incidence of various metastatic skin tumors correlates with the type

of primary cancer.⁵ Breast carcinoma (69%) is the most common cause of cutaneous metastases in women, and lung cancer is the most common cause (24%) in men.⁵ Cutaneous metastasis as the first sign of internal malignancy is seen most frequently with carcinoma of the lungs, kidneys, and ovaries.⁶

In a study by Brady et al,⁷ 7% of patients were found to have a skin nodule before diagnosis of the primary lung tumor and 16% had cutaneous metastases at the time of diagnosis. Lookingbill et al found metastases in 802 of 1,223 patients with lung cancer; 21 patients (1.7%) had cutaneous metastases, 4 (0.3%) of whom had an ini-

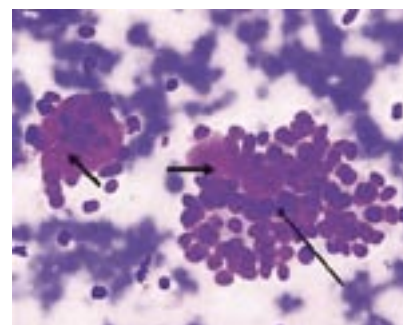


FIGURE 1 Fine-needle aspiration cytology of a scalp nodule. Clusters of monomorphic small cells (long arrow) surround a hyaline pink globule (short arrows; Giemsa stain × 400).

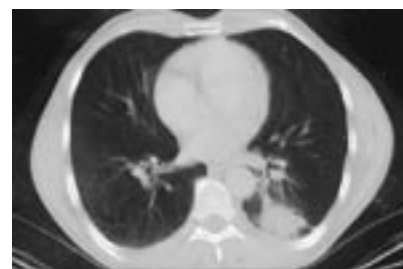


FIGURE 2 CT scan showing a mass in the left lung.

tial presentation with skin metastasis.⁴

On the other hand, paraneoplastic dermatologic disorders in lung carcinomas are not infrequent. Deposition of autoimmune polyclonal antibodies in the epidermis or epidermis-dermis interface of the skin or in blood vessels results in rashes, bullae, or erosion in the skin or vascular abnormalities. Zebra skin, lanuginosa acquisita, triple palms, acanthosis nigricans, dermatomyositis, and multiform reticulosis are some of the more common presenting paraneoplastic skin signs of lung cancer.⁸

Most cutaneous metastases arise as nonspecific, painless, dermal, or subcutaneous nodules with an intact overlying epidermis.⁶ The most common pattern is the rapid emergence of clusters of discrete, firm, painless nodules and swift proliferation; then the nodules remain stationary. Occasionally, the lesions may be zosteriform or inflammatory. The growth pattern of skin metastases is unpredictable and may not reflect that of the primary tumor.

Metastatic skin lesions occur as a result of dissemination either by direct extension, through lymphatics, or via venous channels. When it occurs via direct extension or through the lymphatics, there is involvement of the overlying skin, as seen in cancers of the breasts and oral cavity, whereas with hematogenous spread, there is cutaneous metastasis in skin sites at a distance from the primary tumor, as seen in carcinoma of the lungs and kidneys.⁹

The localization of metastatic skin disease does not occur in a completely random fashion. In 75% of men, localization of secondary tumors was on the skin of the head, neck, anterior chest, and abdomen (together accounting for only about 25% of the body surface); in women, approximately 75% were on the cutaneous surface of the anterior chest and abdomen, comprising less than 20% of the skin surface.⁵

Brownstein and Helwig found that the scalp was an occasional site of cutaneous metastasis.⁵ They noted a 4% incidence of scalp involvement in all cancer patients. In their study, 12 of 22 patients with scalp metastasis had a primary tumor in the lungs and 6 of them had a cutaneous metastatic lesion as the presenting complaint.⁵ Lookingbill et al found that three patients with lung cancer presented with a solitary nodule, one each on the chest wall, scalp, and abdominal wall.⁴

Dreizen et al¹⁰ reported that metastases from lung cancer are of an undifferentiated type in 40% of cases and of an adenocarcinomatous and squamous cell carcinoma type in 30%; they are less common with bronchiolar carcinoma, mucoepidermoid carcinoma, carcinoid, pulmonary sarcoma, and small cell carcinoma as well.¹⁰ Adenocarcinoma shows the greatest tendency to extend to skin sites, whereas large cell carcinoma is the least likely to do so.⁹ Our patient had adenoid cystic carcinoma of the lungs.

Although the prognosis for patients with cutaneous metastases is improving with advances in cancer therapy, it still remains poor, especially in patients with carcinomas of the lungs, ovaries, upper respiratory tract, or upper digestive tract.⁵ After diagnosis of a metastatic skin lesion from lung cancer, the average survival reportedly ranges from 3 to 5 months.¹¹

In conclusion, this case illustrates the importance of obtaining an accurate diagnosis of lung cancer. Clinical symptoms of tuberculosis and lung cancer are frequently similar, and it is not uncommon for patients with lung cancer to be mistreated with antituberculous drugs, particularly in developing countries, thus wasting precious time in treating an advanced cancer with metastatic potential. All patients should undergo thorough clinical investigation of the skin for metastasis. If there is the slightest doubt of malignancy clinically or on a chest x-ray, CT and a biopsy should

be performed. Discovery of cutaneous metastases may alter the staging of disease and hence the prognosis.

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