Pulmonary sarcomatoid carcinoma presenting as subcutaneous nodules

Ajay Tambe, MBBS^a, Poornima Ramadas, MBBS^a , Michael Williams, MD^b, Harvir Singh Gambhir, MD^a, and Rana Naous, MD^b

^aDepartment of Internal Medicine, State University of New York Upstate Medical University, Syracuse, New York; ^bDepartment of Pathology, State University of New York Upstate Medical University, Syracuse, New York

ABSTRACT

Subcutaneous nodules secondary to metastasis can be a presenting symptom of lung cancer. Underlying cancer must be ruled out in patients presenting with multiple subcutaneous nodules with suspicious history, physical, and radiological findings. Prognosis is extremely poor with limited treatment options.

KEYWORDS Carcinoma; metastasis; sarcomatoid; skin

Pulmonary sarcomatoid carcinoma (PSC) is a rare subtype of non-small cell lung cancer comprising <1% of all lung cancers. Although 1% to 12% of any lung cancer cases can metastasize to skin, cutaneous involvement in PSC has rarely been reported. Here we present a 67-year-old woman with persistent shoulder pain and painless subcutaneous nodules. She was later diagnosed with primary PSC with metastasis to skin and other intraabdominal organs.

CASE DESCRIPTION

A 67-year-old white woman with a 50 pack-year history of smoking presented with a 2-month history of cough, dyspnea, and weight loss. Additionally, she found several painless subcutaneous nodules over her back (*Figure 1*), spreading to her chest and abdomen over 2 months. On presentation she was tachycardic, hypotensive, and tachypneic. Numerous subcutaneous nontender and firm nodules measuring 2 to 6 cm in size were present with no overlying skin changes. Imaging of the thorax (*Figure 2*) revealed a left lower lobe cavitary lesion and postobstructive pneumonia secondary to a large left hilar mass. She was started on broad-spectrum antibiotics. Additional imaging showed a large pancreatic mass with metastatic disease involving the liver, peritoneum, abdominal wall, and bones. Biopsy of the cutaneous nodule

over the abdomen showed sarcomatoid carcinoma (*Figure 3*), with the primary in the lung with PDL-1 expression >90%.

The patient underwent palliative radiation to the lung and spine and was started on chemotherapy. Two weeks after the first cycle, she developed acute hypoxic and hypercapnic respiratory failure requiring intubation. Repeat chest radiograph revealed a completely collapsed left lung due to extensive tumor burden, and she died. No autopsy was done.

Figure 1. A subcutaneous nodule over the back.

Corresponding author: Ajay Tambe, MBBS, Department of Internal Medicine, State University of New York Upstate Medical University, 750 East Adams Street, Syracuse, NY 13210 (e-mail: ajaytambe175@gmail.com)

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Figure 2. (a) Chest radiograph revealing left lower lobe cavitary lesion. (b) Computed tomography of the thorax showing a mass in the left lower lobe.

Figure 3. Hematoxylin and eosin stain of nodule showing a cellular spindle proliferation with hyperchromatic pleomorphic cells with inflammatory infiltrate (200× magnification).

DISCUSSION

Cutaneous metastases occur in 0.7% to 9% of all patients with cancer, and skin is an uncommon site of metastasis compared to other organs.¹ The metastases can appear as a nodule, ulceration, cellulitis-like lesion, or fibrotic process. The nodular type is the most common and is a result of

hematogenous metastasis. The nodules are painless, mobile or fixed, firm or rubbery, discrete or multiple, measuring between 5 mm and 6 cm in diameter. Overlying skin color can vary from flesh tones to red-purple or blue-black. The pattern of cutaneous metastasis is related to the sex, age, and race of the patient. Carcinomas of the breast and lung are the most common primary tumors causing cutaneous metastasis in women and men, respectively.²

PSC is a rare subtype of non-small cell lung cancer comprising 0.1% to 0.4% of all lung cancers.³ PSC is highly aggressive, involving the adjacent lung, chest wall, diaphragm, and other tissues by the time of diagnosis. Very few cases have been published describing cutaneous metastasis as an initial presentation in PSC. Metastasis to the skin in lung cancer occurs in the later stage of the disease. It is an ominous sign indicating poor prognosis and imminent death.⁴ Most studies have shown survival ranging between 3 and 5 months in lung cancer patients with cutaneous metastases.⁵ In such patients, palliative chemotherapy is offered, and radiation therapy is offered if there is bleeding or pain in the cutaneous lesions.

ORCID

Poornima Ramadas <http://orcid.org/0000-0002-7547-2315>

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