

Cutaneous metastases from lung adenocarcinoma: a case report

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Summary. Cutaneous metastases from lung carcinoma are rare and have ominous prognosis. They are an important finding and are not often the first sign leading to diagnosis. We reported a case in which a 52-year-old male, smoker, initially presented with rapidly growing skin nodules on his back and right thigh, without any pulmonary complaints. Biopsy of the skin nodules revealed metastatic adenocarcinoma consistent with primary lung origin. Computed tomography showed an expansive process on the upper lobe of left lung with atypical characteristics suspicious of primary site. Abdominal and pelvic CT scan showed disseminated bone metastases. In a multidisciplinary discussion, it was considered that there is no indication for chemotherapy or radiotherapy due to the rapid clinical worsening of the patient. He received palliative treatment and died 5 weeks after diagnosis of his metastatic lung cancer. We are presenting a rare case of lung adenocarcinoma with skin metastases, which was simultaneously diagnosed. A high index of suspicion is necessary for the early detection of cutaneous metastases from lung tumours, especially if there is history of smoking or lung cancer.

Key words: cutaneous metastases, lung cancer, adenocarcinoma

Introduction

Cutaneous metastatic disease is uncommon, ranging from 1 to 12% and may represent the first manifestation of an internal, asymptomatic or unsuspected, occult malignancy (1-3).

Lung cancer has become one of the most common type of malignancy with high mortality rate (4). The most common histological type is adenocarcinoma, followed by squamous cell carcinoma, small cell carcinoma, large cell carcinoma, and bronchial carcinoid. It frequently metastasizes to liver, hilar lymph nodes, contralateral lung, adrenal glands, bone and brain (5), while the skin is rarely affected (6). All histological types of lung cancer may metastasize to the skin and clinical lesions are variable. Most common sites of skin metastases from lung cancer are the anterior chest, abdomen, head and neck. Although, they do not have a characteristic clinical presentation, they are often described as round or oval nodules, mobile or fixed,

hard or flexible, single or multiple (usually grouped), and skin-coloured (but sometimes flesh-coloured, red, pink, purple, or bluish black) (6). The nodules are usually painless but they may ulcerate or necrotize. The presence of skin metastases from lung cancer is associated with poor prognosis (5).

We hereby present a case of lung adenocarcinoma with skin metastases, which was simultaneously diagnosed.

Case Presentation

A 52-years-old caucasian male, heavy smoker, with a past medical history of dyslipidemia and Peyronie's Disease, was admitted at the emergency department with lower back pain upon injury, with a three weeks extent, refractory to conventional pain treatment and with high functional incapacity. The patient also reported the onset of multiple skin nodules, with rapid

growing, located in the back, right thigh and close to the xiphoid process with an evolution of two months. The nodules were firm, tender, skin-coloured, painless and measured 5-15 millimetres in greatest dimension. The nodule from right thigh evolved to ulcer after treatment with topic antibiotic (Figure 1). In addition, the patient exhibited signs of weight loss, anorexia and dysphonia but no respiratory symptoms. On physical examination there was a large, ulcerative, well-circumscribed lesion, measuring 35 mm in diameter on the on right thigh, and multiple subcutaneous nodules, firm, tender and painless on abdominal wall, back and chest with no cervical, axillary and inguinal lymphadenopathy. The remainder of the exam was normal. Laboratory results were within normal. Lumbar Computed tomography (CT) scan revealed an osteolytic lesion on vertebral body of L2 and S2 suspicious of secondary deposits. Lumbar spine magnetic resonance imaging (MRI) exhibited multiple lesions on vertebral bodies and posterior arches of D9, D11, D12, L2, L3 and L4, sacrum and wings of ilium suspicious of metastatic deposits (Figure 2).

The patient was admitted to the Medicine ward for further investigation. Excisional biopsies were performed to the ulcerative lesion of the thigh and one of the lesions of abdominal wall. Histopathology confirmed metastatic nature of the lesions (Figure 3) namely adenocarcinoma with solid pattern, poor differentiated,

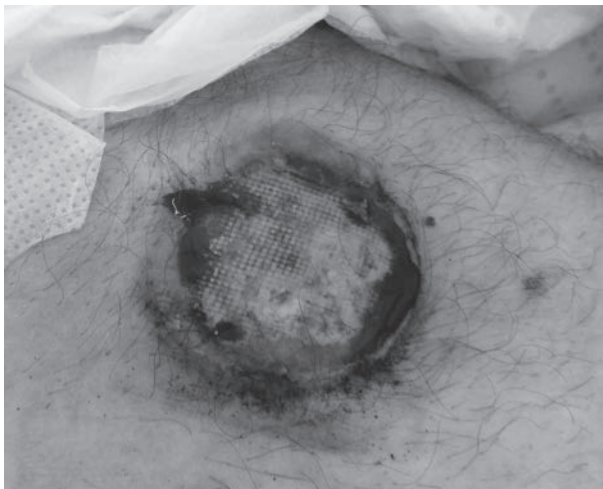


Figure 1. Macroscopic aspect of the ulcerate skin lesion from right thigh.

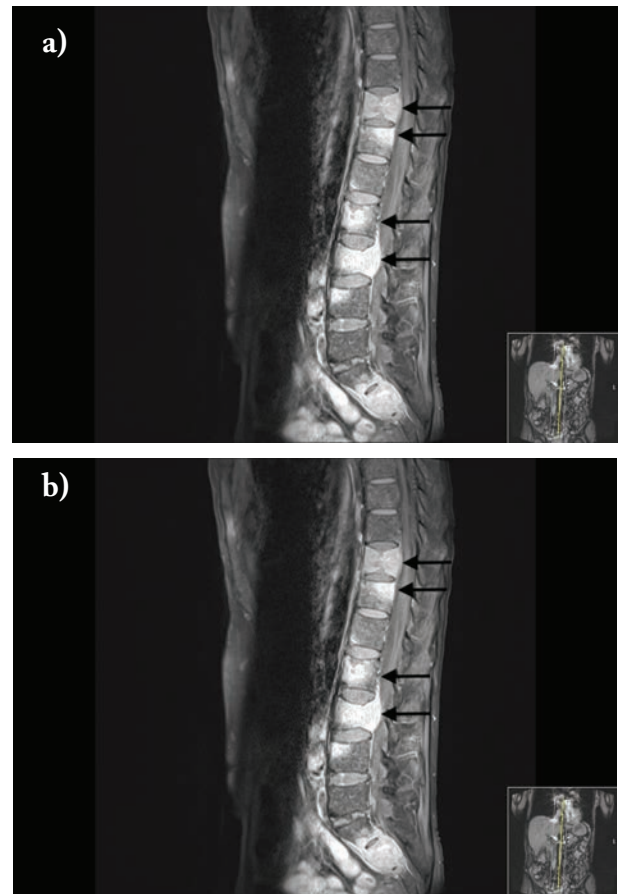


Figure 2. Magnet resonance imaging of metastases located in the axial skeleton, spine and pelvis.

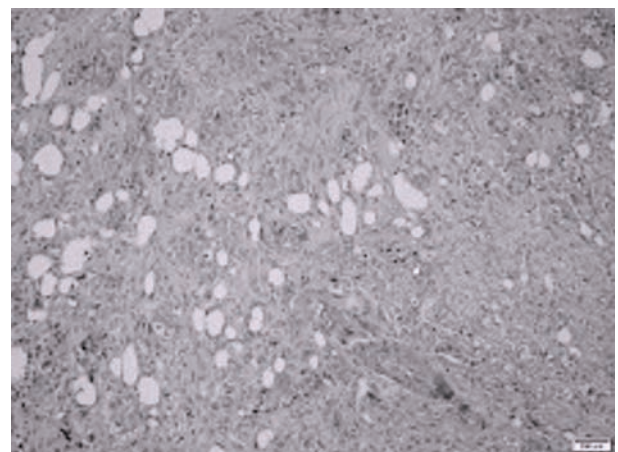


Figure 3. Hematoxylin & eosin stain: ulceration of the epidermis with infiltration by adenocarcinoma.

favouring pulmonary origin. In immunohistochemistry, tumour cells were positive to Cytokeratin 7 (CK-7) (Figure 4) and there was no expression of Cytokeratin 20, Cytokeratin 5/6, estrogen receptors, prostate specific antigen (PSA) and thyroid transcription factor 1 (TTF-1) (not shown). For further evaluation, chest CT scan revealed an expansive process in the upper lobe of left lung with atypical characteristics accompanied by closure of the superior lobar bronchus with vascular invasion (Figure 5), bilateral pleural effusion and two nodular lesions in the left lung- one parenchymal and other pleural - and two sub-pleural nodules on the right lung attributable to metastases. Abdominal and pelvic CT scan showed disseminated bone metastases especially in the axial skeleton, spine and pelvis. Head CT was normal. Because of dysphonia, patient was observed by the otolaryngology and it was identified paralysis of the left hemilarynx by probable compression of the left recurrent laryngeal nerve at the thoracic level due to pulmonary nodular lesion. A bronchoscopy was planned, but during his hospital stay, the patient developed a bronchopneumonia, and his condition worsened rapidly with degradation of his clinical status, and he was not fit to perform the procedure.

The clinical case was evaluated in a multidisciplinary discussion and it was considered that patient did not present clinical conditions to start chemotherapy or radiotherapy. Therefore, he received supportive therapy, mainly pain treatment by palliative care team. It was observed an unfavourable clinical

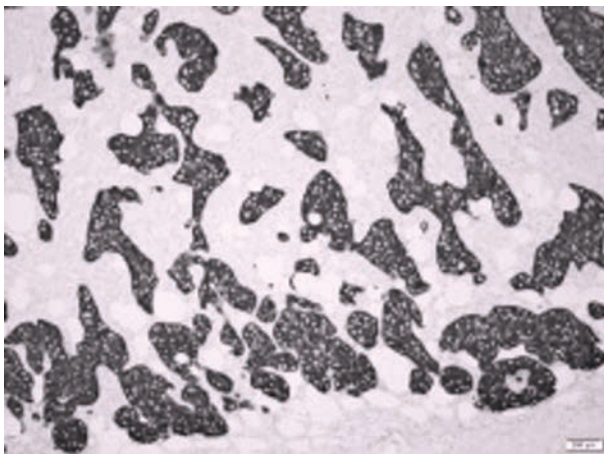


Figure 4. Positive Cytokeratine 7 immunostaining.

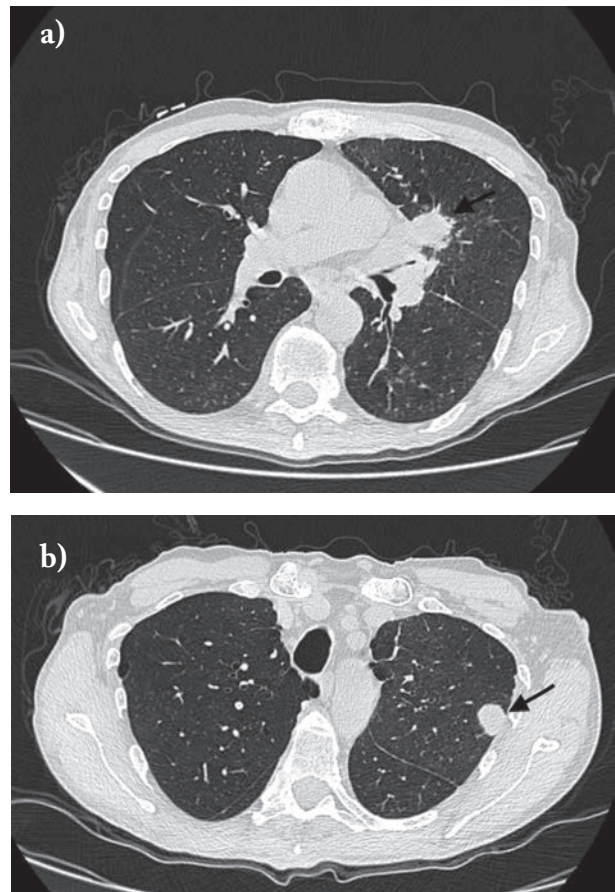


Figure 5. Computed tomography revealed a solid expansive process in the upper lobe of the left lung.

course and patient died 5 weeks after lung cancer diagnosis. Skin metastases were the first sign.

Discussion

Cutaneous metastases of lung cancer are rare and according to some data, they are more frequent in men than in women (6). Although, its low incidence it is important to ruled out in patients with suspicious skin lesions, history of lung carcinoma, or tobacco exposure. Our patient was male, had a history of heavy smoking, and had multiple cutaneous lesions as the first presentation for an underlying undiagnosed lung adenocarcinoma.

Most skin metastases occur in regions close to the primary cancer, however lung, melanoma, and breast

malignancies are the cancers most likely to metastasize to remote cutaneous sites (7). The most common sites of lung skin metastases are the scalp, head and neck region, and the anterior chest in men and the anterior chest wall and the abdomen in women, with the most histological diagnosis, in both gender, being adenocarcinoma (8). In 20-60% of reported cases, the skin lesions may present before or concurrently with the diagnosis of primary tumor (1, 3, 6). In this case, the histological type was adenocarcinoma with skin lesions presented in the back, right thigh, chest and abdominal wall, however no lesions in the scalp or head/neck were found. These lesions grew fast over a 2 months period, before the first occurrence of his bone complaints (due to bone metastases) and no pulmonary symptoms were reported until the presence of pulmonary infection.

Physically, cutaneous metastatic lesions due to lung cancer are indistinguishable from those due to carcinoma originating elsewhere in the body, nevertheless nodular lesions, often multiple, are the most frequent ones (9). Histologically, skin metastases from the lung are frequently poorly differentiated and immunohistochemical markers that may be useful for diagnosis are TTF-1, CK-7 and CK-20 (10, 11) and cytokeratin 7 (CK7). However, if there is unknown primary site, further investigations should be done by history, physical exam, and multiple imaging methods. Nevertheless, being the first sign of presentation, cutaneous metastases biopsy can often help find the primary cancer, since the primary lung lesion often remains quiescent, such as in our case. For our diagnosis, two nodular subepidermal specimens were stained with CK-7, which is specific to adenocarcinoma. In this case, excisional biopsy of the primary lung lesion was not performed but imaging revealed a nodular lesion with atypical characteristics; thus combining those imaging and histological findings with the patient's heavy smoking history, the diagnosis of lung adenocarcinoma was made.

The presence of cutaneous metastases in lung cancer has a poor prognosis and short survival, as they demonstrate that the primary cancer is advanced. Patients that present with skin metastases earlier during the disease course, have poorer prognosis compared to those with later developed metastases. Other poor prognostic indicators include small-cell primary lung

tumours (nonresectable), multiple metastatic cutaneous lesions, and/or other distant metastases (12, 13). Our patient had three poor prognostic indicators: skin lesion presented before lung cancer diagnosis, multiple cutaneous metastases and other distant metastases (bone, pleural and contralateral lung secondary deposits). The median survival is approximately 3 months in patients with skin and organ metastasis, whereas the survival reaches 10 months in patients with only skin metastasis (12). Our patient survived only 5 weeks after the time of diagnosis.

Although it is uncommon, cutaneous metastases, which may be concurrent with the diagnosis of lung cancer, may be the first sign of the disease. Due to the non-specific appearance, they can be misdiagnosed as benign lesions. Therefore, it should be suspected in cases of atypical lesions in the skin of smokers.

Acknowledgements

The authors would like to acknowledge to Dr. Diana Grangeia and Dr. Eugenia Pinto of the Department of Pathological Anatomy from Hospital São José for the photos made available.

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