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Case Report

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Muscle metastasis revealing an adenocarcinoma of the lung

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Abstract

Lung cancers are diagnosed at a metastatic stage in 40% to 50% of cases. Skeletal Muscle Metastases (SMM) are rare and usually discovered at autopsy. We report a case of SMM which revealed an adenocarcinoma of the lung in a 38-year-old patient. The diagnosis was confirmed histologically. Death occured one week after diagnosis.

Keywords: Skeletal muscle metastases; Lung cancers; Adenocarcinoma.

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Introduction

Lung cancer is the fourth leading cause of death worldwide [1]. Unfortunately, at the time of diagnosis almost half of patients have distant metastases [2]. The most frequent metastases are liver, bone, and brain. Muscle metastases are rare and can occur in two main ways: by contiguity with loco-regional invasion or rarely by the hematogenous way. These metastases have a poor prognosis [3].

Case report

A 38-year-old male who reported being a heavy smoker was sent for exploration of a subcutaneous mass on the left thigh. Physical examination of the limbs revealed a subcutaneous mass on the left thigh measuring 15 x 5 cm, hard and painless on palpation. A scan centered on the thighs (Figure 1) showed a largely necrotic tissue mass of the left muscle Sartorius. A surgical biopsy of the thigh mass revealed muscle metastasis from adenocarcinoma of pulmonary primary origin. Computed tomography of the chest and abdominopelvic regions identified a total collapsed unventilated lower right lobe lung. Bronchoscopy showed a non-catheterisable obstruction of the intermediate trunk. Bronchial fluid cytology showed the presence of atypical cells suggestive of poorly differentiated carcinoma. The bronchial biopsy showed an aspect of a malignant tumor probably a non-small cell carcinoma of the bronchial mucosa. The immunohistochemical study provided the diagnosis of lung adenocarcinoma. Chemotherapy was indicated but refused by the patient. The death occurred one week after diagnosis.

Discussion

Lung cancer remains one of the leading causes of cancer deaths worldwide due to late diagnosis. The most common known metastases are adrenal, liver, bone, and brain [3]. The metastatic spread of lung cancer in the skeletal muscle is an uncommon finding (<1%), associated with poor prognosis and an average life expectancy of 6 months [2]. Arpaci et al. reported an SMM incidence of 0.16% among 2,557 patients with lung cancer [4]. SMM are rare and may exceptionally reveal lung cancers [5]. The originality of our case is that the SMM had revealed the lung cancer. Three theories have emerged to explain the low affinity of tumor cells for muscle tissue: the immunological theory (the role of humoral and cellular immunity); the metabolic theory (possible involvement of oxygen fluctuations, variable pH, and lactic acid production); and the mechanical theory (possible protective effect of muscle contractions due to

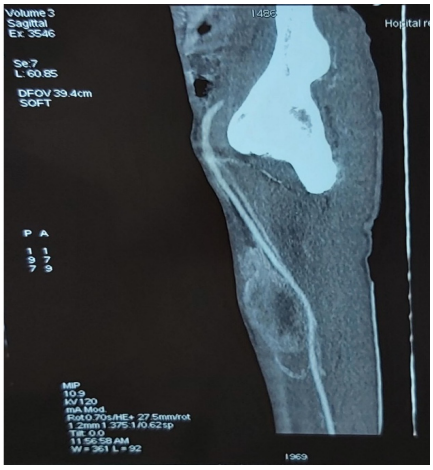

Figure 1: scanner with sagital cut centered on the thighs showed the presence of a largely necrotic tissue mass of the left muscle Sartorius.

high pressure and variable blood flow) [6]. The most common histological types of lung cancer which metastases in skeletal muscle are adenocarcinoma [4]. The most affected muscles are usually the iliopsoas and paraspinal muscles [3]. In our case, it was a lung adenocarcinoma which had metastased in Sartorius muscle. The clinical presentation of SMM varies widely, from lesions that can be asymptomatic or painful and/or palpable, or can cause functional limitation in the affected area, to incidental findings in complementary imaging test [2]. The initial diagnostic approach in patients with suspected SMM usually begins with a Computed Tomography (CT) scans of the chest. Surov et al. proposed 5 radiologic patterns for the characterization of SMM: type I: intramuscular mass; type II: abscess-like lesion; type III: diffuse muscle tissue infiltration; type IV: lesion with multiple calcifications, and type V: intramuscular bleeding pattern [7]. The use of additional techniques, such as magnetic resonance imaging (very useful for differentiating between SMM and primary malignant muscle lesions), and positron emission tomography with ^{18}F-fluorodeoxyglucose (greater proven sensitivity for detecting SMM and skin lesions) should also be considered [6]. However, a definitive diagnosis requires histological analysis of the lesion [2]. The occurrence of these metastases is indicative of the aggressive nature of the primary tumor. Pop et al found identical survival at 5 years with a median of 6 months in patients with early detection of muscle metastases [8]. The treatment of muscle metastases is not yet well codified due to the rarity of the cases. In cases of solitary metastasis, excision may be performed, combined with adjuvant chemotherapy. In other cases, the association of excision and/or local radiotherapy with adjuvant chemotherapy has given good results in patient survival [9].

Declarations

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Consent: The written consent of patients has been obtained.

No conflicts of interest.

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