



Forearm Metastases as Unsuspected First Manifestations of Lung Adenocarcinoma

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Abstract

An 83-year-old male who was a former smoker had pain on the left forearm accompanied with progressive swelling in the last four to five months. Imaging studies revealed a cystic necrotic mass on the flexor digitorum superficialis muscle (biopsy: striated muscle tissue infiltrated by an adenocarcinoma). A whole-body computerized tomography (CT) scan demonstrates the presence of two lung masses that were suspicious of malignancy. Diagnosed as having stage IV lung adenocarcinoma (cT4NxM1b, IASLC TNM 8th [3]), he received chemotherapy with a carboplatin/pemetrexed-based regimen and local palliative radiation for the control of arm pain.

KEYWORDS: Lung and pleural malignancies, lung pathology, clinical problems, diagnostic methods

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INTRODUCTION

Lung cancer accounts the most lethal malignancy worldwide, with high rates of metastatic disease at presentation [1]. Most common metastatic locations are lungs, lymph nodes, liver, brain and bones, whilst other metastatic sites, like muscles, are rare and more often found during disease evolution [2]. Here we describe a clinical case of a patient diagnosed of a muscular metastases on left forearm as first clinical sign of a lung adenocarcinoma.

CASE PRESENTATION

An 83-year-old former smoker male consulted his primary care physician because of pain in the distal third of his left forearm, which was accompanied with a slow-growing painful tumor. He also referred having paresthesias on fourth and fifth left fingers which had appeared few days ago (Figure 1a).

Doppler ultrasonography and magnetic resonance imaging were performed to obtain a complete evaluation. They revealed a 35x26x46 mm mass with cystic necrotic areas and large soft-tissue edema on the flexor digitorum superficialis muscle (Figure 1b,c). Core needle biopsy was performed, and a pathological examination revealed a striated muscle tissue infiltrated by the adenocarcinoma (CK7- and TTF-1 positive). Further imaging with a thoracoabdominal-pelvic CT scan was performed based on the pathological findings. As a result of the CT scan, two lung spiculated lesions were found: one in the right lower lobe and the other in the apical segment of the right upper lobe (Figure 1d,e). The patient was diagnosed with stage IV lung adenocarcinoma (cT4NxM1b) [3].

Given the continuous pain in his upper right extremity, he was offered palliative local radiation therapy on his forearm metastases. The patient had a great performance status (Karnofsky: 90%, no significant comorbidities); therefore, he was offered a chemotherapy regimen with carboplatin plus pemetrexed, which he started receiving with good tolerance. Magnetic resonance imaging demonstrated a good radiological response with persistence of a residual non-vascularized lesion that was 7x10 mm in size.

Written informed consent was obtained from the patient who participated in this case.

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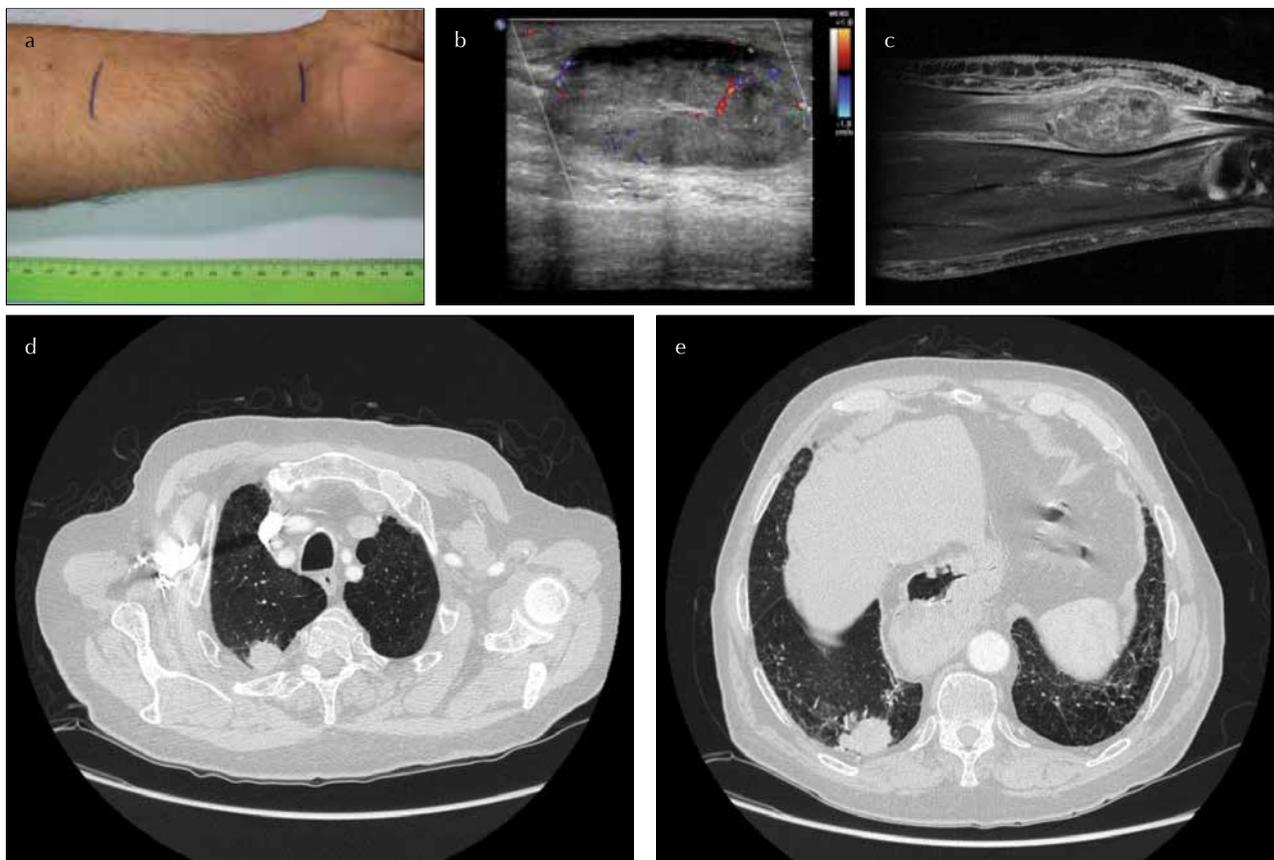


Figure 1. a-e. (a) Left forearm. Marks show the limits of palpable tumor, (b) ultrasound image. Tumor image measuring 4x2x3 cm, has mixed ecogenicity, predominantly hypochoic, and shows inner vasculature, (c) MRI image. Deep tumor mass measuring 35x26x46mm on left forearm, housed on flexor compartment. It associates local edema and shows mild enhancement with gadolinium contrast, (d) Chest-CT showing a solid nodule of approximately 25mm, contacting pleura on apical segmento on right upper lobe, (e) . Chest CT showing lung mass on right lower lobe, spiculated, suspicious of primary lung tumor

DISCUSSION

The most frequent extrathoracic locations for lung cancer metastases are the liver, adrenal glands, brain, bone, and kidneys. Skeletal muscle (SM) metastases are uncommon (prevalence close to 0-0.8%). There are three theories that attempt to explain the low affinity of cancer cells to skeletal tissues: mechanical (muscle contractions could prevent the tumor to settle due to high blood pressure and variable local blood flow), metabolic (as a consequence of elevated lactate production, pH instability, and variable oxygen tension), and immunologic hypothesis (role of cellular and humoral immunity) [4-6].

The clinical presentation in 80% of cases is a painful palpable mass (mean size of 6 cm) that is usually located in the back, chest wall, abdomen, or thigh muscles. Magnetic resonance imaging and fluorine-18-fluorodeoxyglucose positron emission tomography are the most commonly used imaging tests to differentiate muscle metastases from other lesions with similar presentations (primary sarcomas and lymphomas). Establishing the definitive diagnosis necessitates to perform a biopsy [4].

Therapeutic options include observation, radiotherapy (useful for pain control and reduction in lesion size), chemotherapy, and surgery (for isolated lesions after a long

disease-free interval). The expected survival rate fluctuates between less than 9 months to 3 years after the diagnosis of the mass. To conclude, treatment depends on the localization, clinical presentation, and prognosis of the primary tumor [4,5].

To our knowledge, this is the first published case of SM metastases in the flexor digitorum superficialis muscle as the first manifestation in lung cancer.

Informed Consent: Written informed consent was obtained from the patient who participated in this case.

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