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CASE REPORT

Intramuscular forearm metastasis as an initial presentation of bronchial adenocarcinoma

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Painful soft tissue masses may in rare instances correspond to intramuscular metastases from an unknown malignant neoplasia. We report an unusual case of a muscular metastasis to the flexor compartment of the forearm as the first clinical manifestation of an asymptomatic bronchial adenocarcinoma in a 46-old-year man.

Keywords : metastasis ; bronchial adenocarcinoma ; skeletal muscle.

INTRODUCTION

Skeletal muscle metastasis from any site of malignant neoplasia is a rare occurrence, and the initial presentation with distant soft tissue metastasis is even more uncommon (*8*).

The incidence of skeletal muscle metastasis seems to be less than 1% ; lung carcinoma is the underlying primary malignancy in most cases (*6,10*).

In literature 19 cases of skeletal muscle metastasis revealing an asymptomatic lung cancer have been reported and only two of these were localized in the forearm (*1-7,9,11,12*).

We report the clinical features, radiological findings, treatment and outcome of a patient who presented with intramuscular metastasis of the forearm as an initial manifestation of bronchial adenocarcinoma.

CASE REPORT

In October 2006, a 45-year-old male, a heavy smoker, consulted us, reporting that he had developed a painful mass in his left forearm over approximately two months, without any history of trauma ; he also reported weight loss of 10 kg over the preceding six months.

Physical examination revealed a hard, fixed and painful mass in the flexor compartment of the left forearm.

Laboratory investigations showed WBC 13.2×10^3/mL (neutrophils 70%, lymphocytes 14%), RBC 4.43×10^6/mL, Hb 13.3 g/dL and a platelet count of 369×10^3/mL. The erythrocyte sedimentation rate was 45 mm/h. Renal and liver function tests were within normal limits.

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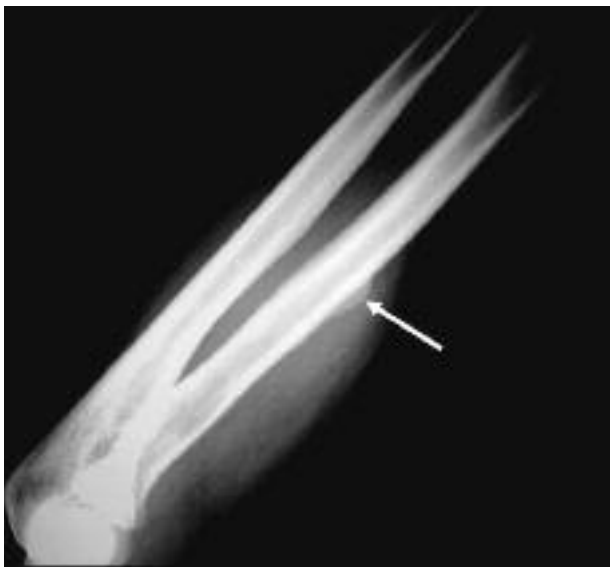

Fig. 1. — Radiograph of the left forearm showing a periosteal reaction of the radius (arrow).

Ultrasonography of the right forearm demonstrated the presence of a deep ovoid hypoechoic mass located in the deep muscular fibres of the antero-lateral region of the forearm, adjacent to the radius periosteum, and measuring 4×3 cm.

Radiographs of the left forearm showed a periosteal reaction of the radius (fig 1).

Computed tomography (CT) revealed a localized vascularized mass invading the periosteum of the radius, measuring 3 cm in length and 2 cm in width (fig 2a,b,c).

An incisional biopsy was performed and pathological examination revealed fibrous tissue with nests of glandular neoplasm with a pleiomorphic cell population arranged in epithelial nests (fig 3). Immunohistochemistry showed a positive CK 7 stain and negative stain for vimentin, suggesting a diagnosis of metastatic adenocarcinoma from a possible lung primary.

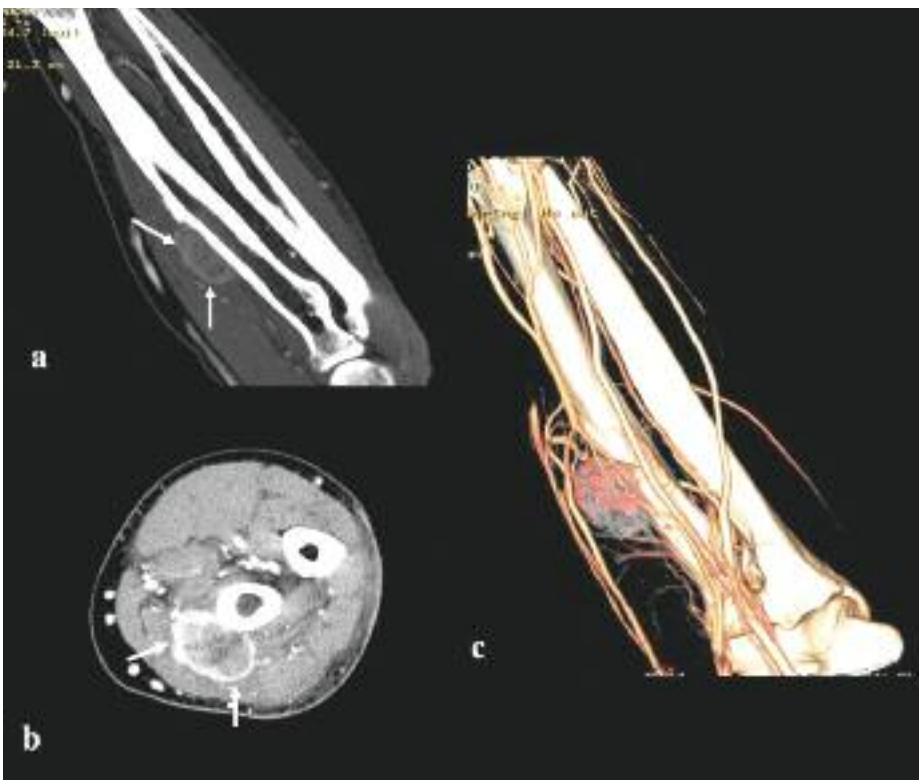

Fig. 2. — Coronal CT scan showing a well-defined enhanced mass in the antero-lateral compartment of the left forearm muscles (arrows) (a). Axial view after administration of iodine-based contrast material (arrows) ; (b). Three-dimensional CT reconstruction showing the same mass (c).

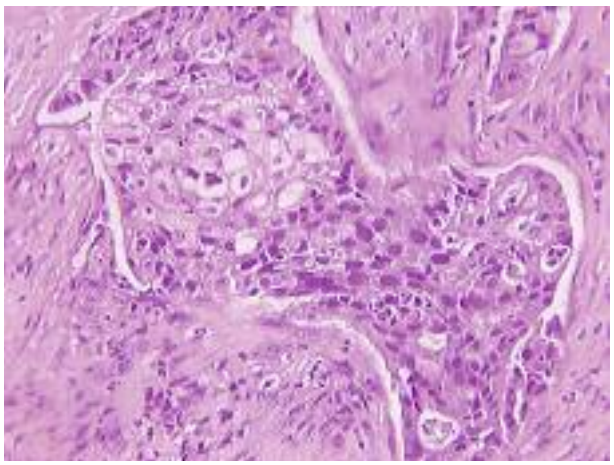

Fig. 3. — Biopsy histology showing neoplastic epithelial cells. Haematoxylin and eosin ×200 magnification.

Chest radiographs showed normal findings.

CT scan of the chest revealed an opacity of about 2.6 cm in diameter in the left hilar region which was infiltrating around the left pulmonary artery and obliterating the upper lobe bronchus. CT scan also showed large swelling of mediastinal lymph nodes.

Fiberoptic bronchoscopic examination yielded an endobronchial mass that was confirmed by biopsy to be an adenocarcinoma.

Total body CT scan revealed a 1 cm mass within the iliopsosas muscle on the right side and hypertrophic periaortic lymph nodes.

Tc-99m methylene diphosphonate bone scan showed normal findings.

The patient received chemotherapy without achieving remission of the primary tumour or metastatic deposit. Following chemotherapy, local control of the metastatic lesion was achieved by local radiotherapy. Local radiation provided relief from forearm pain and swelling. Despite chemotherapy the disease progressed and a Total Body CT scan performed 3 months later showed an expansive extrapleural lesion on the left side of the chest wall and other lesions on the abdominal wall. The patient died 12 months after diagnosis.

DISCUSSION

The presentation of a skeletal muscle metastasis in a patient with no known primary malignancy is a rare occurrence. Soft tissue metastases are very uncommon even in patients with known malignant neoplasia (*3*).

The biological basis for the rarity of skeletal muscle metastasis is not well established ; it remains a matter for speculation : contractile actions, local pH environment, blood turbulence, accumulation of lactic acid and other metabolites can act as defensive factors against the spread of the tumour (*6,12*).

Metastatic disease to muscle is usually found in individuals with advanced stage neoplasia and may be misdiagnosed when it is the presenting symptom, particularly in the absence of a known primary malignancy (*9*).

The skeletal muscles most frequently involved are the glutei, psoas, pectoralis, biceps brachii, quadriceps femori and paraspinal muscles (*12*).

Our case represents a rare manifestation of bronchial adenocarcinoma metastatic to upper extremity musculature in the absence of any osseous involvement.

The diagnosis of muscular metastasis is challenging because of the lack of specific clinical symptoms that may mimic those of abscess, haemorrhage or soft tissue sarcoma (*1*).

Various imaging studies are usually used to identify metastases to muscle but none are specific for differentiating among carcinomas, sarcomas, or other muscle disorders (*5*). For this reason biopsy for histologic diagnosis is mandatory in these cases.

The therapeutic approaches to muscular metastasis are not well established ; they include chemotherapy, radiotherapy and surgical excision. Similar to Herring *et al* (*5*), we think that, considering the poor survival of these patients, surgical resection should be reserved for those lesions that fail to be controlled locally with radiation or when tumour growth results in neurologic deficit.

In conclusion, patients presenting with soft tissue masses should have metastatic pulmonary neoplasia added to the differential diagnosis ; histology is

essential for diagnosis and local radiotherapy may be a good therapeutic option in such cases.

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