

CASE REPORT

Squamous cell carcinoma of the lung with simultaneous metastases to peritoneum and skeletal muscle

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Keywords

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Abstract

Skeletal muscle and peritoneum are rare sites of metastases from lung cancer. We report a case of squamous cell lung cancer with concurrent metastases to skeletal muscle and peritoneum. A 71-year-old man was diagnosed with squamous cell carcinoma of the right lower lobe with metastasis to the right hilar lymph node at clinical stage T3N1M0. Because of poor performance status and comorbidity, he only received radiation therapy. Positron emission tomography-computed tomography for mid-assessment of response showed two abnormal hypermetabolic lesions in the peritoneum of the left upper quadrant area and the left thigh muscle. We performed a needle-approach biopsy in each lesion and found both of the lesions were metastases from lung cancer. The patient died after two months.

Introduction

Most malignancies that preferentially metastasize to the peritoneum are adenocarcinomas of the gastrointestinal tracts (especially the stomach and colon), pancreas, ovary, and breast, as well as lymphoma and sarcoma.^{1,2} Peritoneal metastases from non-small cell lung cancer (NSCLC) are rare clinical manifestations, and most of the cell types are adenocarcinoma and large cell carcinoma. To our knowledge, squamous cell carcinoma (SCC) of the lung only, metastasized to the peritoneum without metastasis into intra-abdominal organs, has not previously been reported. Metastases to the skeletal muscles are also very rare events in the clinical course of lung cancer.^{3,4}

Herein, we report a case of SCC of the lung with concurrent metastases to the peritoneum and skeletal muscle.

Case report

A 71-year old man visited our facility for evaluation of a nodular lesion in the right lower lobe field and was diagnosed with moderately differentiated SCC of the lung, of which the clinical stage was determined to be T3N1M0 (Figs 1, 2). He was

an ex-smoker (30 pack-years) and was previously diagnosed with essential hypertension, coronary artery disease, hepatitis C virus related liver cirrhosis, and diabetes mellitus. He was also diagnosed with small hepatocellular carcinoma six months ago and treated with trans-catheter arterial chemoembolization. Because the patient had suffered from many significant comorbidities and his initial ECOG-PS (Eastern cooperative Oncology Group-performance status) was three points, radiation therapy (RT) for lung cancer was the only appropriate treatment. After the 19th fraction of three-dimensional conformal radiation therapy for a total dose of 34.2 Gy at 1.8 Gy daily fractions RT, positron emission tomography-computed tomography (PET-CT) was performed for mid-assessment of response. PET-CT showed the apparition of two hypermetabolic lesions, one in the peritoneum and the other in the left thigh (Fig. 3). Needle-approach biopsy of the left thigh muscle and the peritoneum revealed squamous cell carcinoma (Fig. 4A–C). Those histologic findings corresponded with his primary lung cancer diagnosis (Fig. 2) and yielded an additional diagnosis of muscular and peritoneal metastases. The patient received only supportive care without any further anticancer therapy. He died of urinary tract infection and sepsis four months after diagnosis.

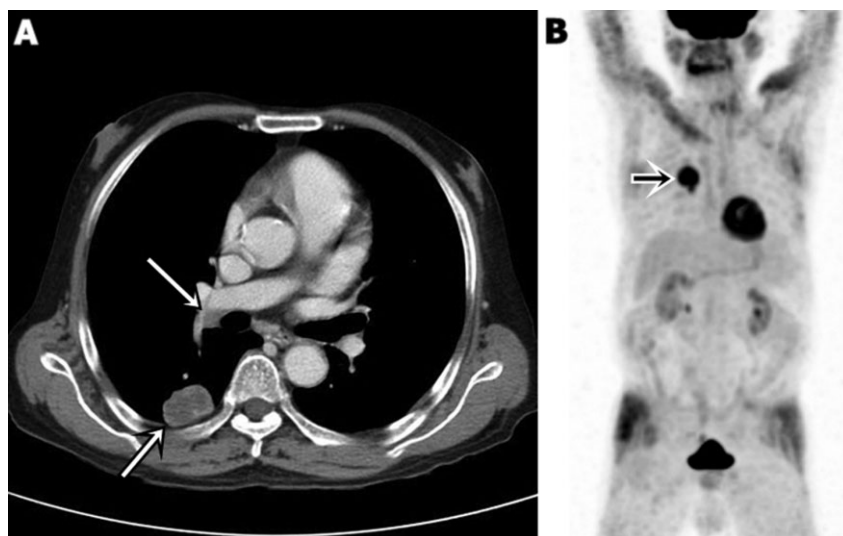


Figure 1 (A) A computed tomographic (CT) scan of the chest shows a tumor in the right lower lobe with metastasis into the right hilum (white arrows). (B) Initial 18F-fluorodeoxyglucose (FDG) positron emission tomography (PET)-CT scan shows a hypermetabolic lesion in the right lower lobe field (black arrow).

Discussion

The common sites of distant metastases in patients with NSCLC have been reported to be the brain, bone, liver, and adrenal glands.⁵ Occasionally lung cancer spreads to the stomach, small and large intestines, pancreas, eye, skin, and even breast. But both peritoneal and skeletal muscle metastasis from NSCLC are very rarely encountered in clinical practice.

A retrospective study found 1.2% of incidence in peritoneal carcinomatosis of lung cancer with multiple distant metastases. The pathologic subtypes were adenocarcinoma and large cell carcinoma and their prognosis were very poor.⁶

Skeletal muscle metastases from NSCLC are also rarely encountered in clinical practice and the prognosis for these is also poor.^{3,4}

In the present case, the patient had two isolated metastases, in the peritoneum and skeletal muscle, without any other organ involvement. Moreover, the cell type of lung cancer was SCC, neither adenocarcinoma nor large cell carcinoma.

Both poor performance status and comorbidity conditions are well known to be unfavorable prognostic factors.^{7,8} The patient died two months after diagnosis of metastases and four months after initial diagnosis of lung cancer. His poor clinical course seems to be related with skeletal and peritoneal metastases, as well as poor performance status and comorbidity.

In conclusion, it is worthwhile to consider that squamous cell carcinoma of the lung could metastasize to peritoneum and/or skeletal muscle and the prognosis will likely be very poor.

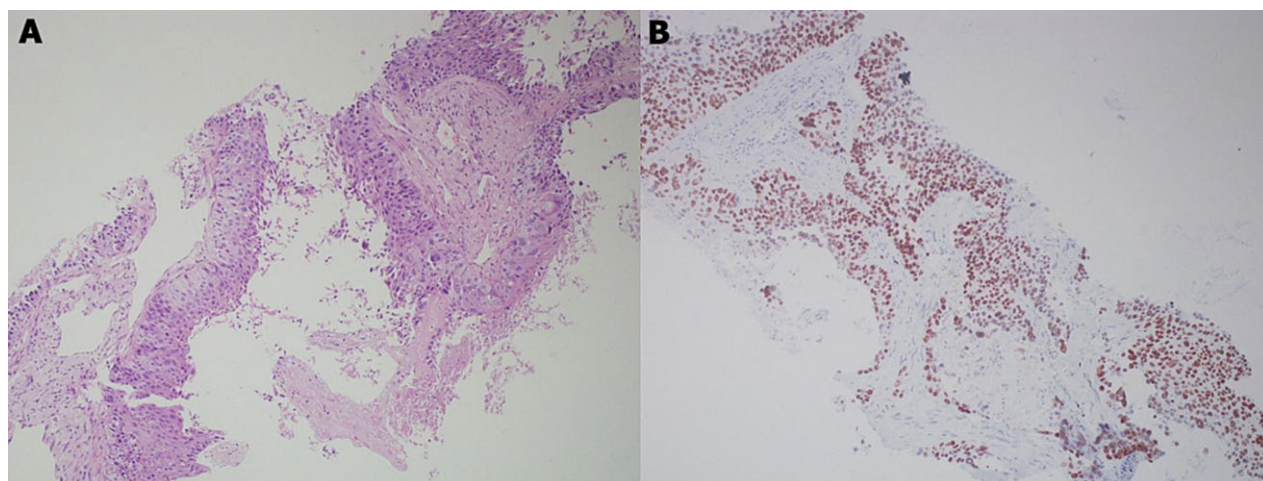


Figure 2 The tumor shows squamous cell carcinoma with moderate differentiation (A, hematoxylin and eosin, $\times 100$). The tumor cells are positive for p63 (B, Papanicolaou's stain and Pap, $\times 100$).

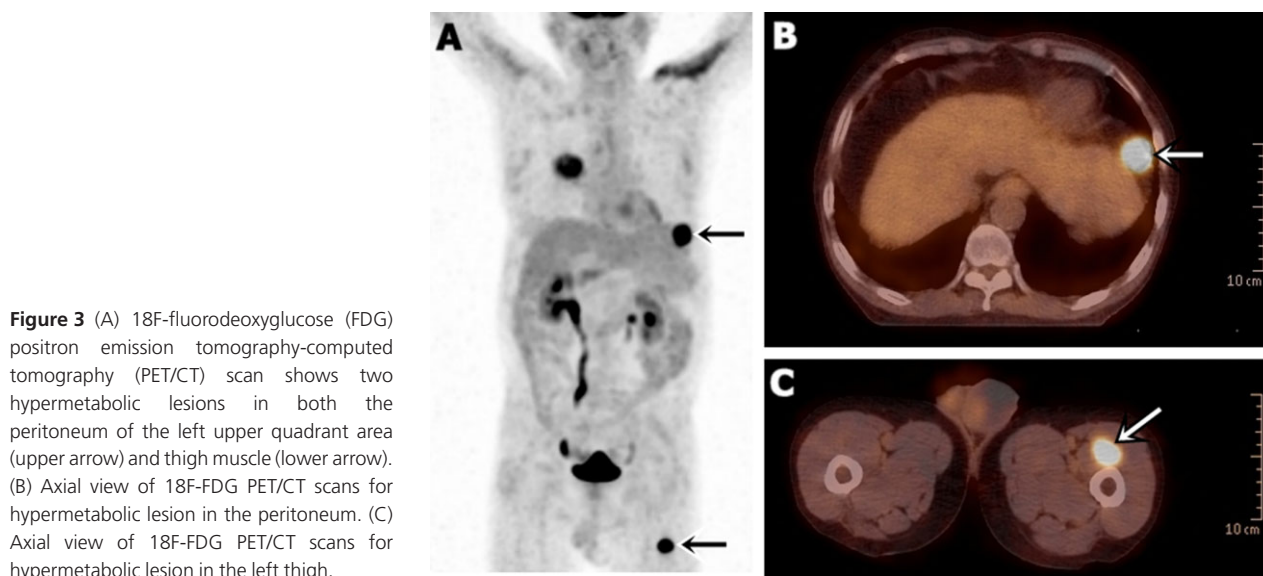


Figure 3 (A) 18F-fluorodeoxyglucose (FDG) positron emission tomography-computed tomography (PET/CT) scan shows two hypermetabolic lesions in both the peritoneum of the left upper quadrant area (upper arrow) and thigh muscle (lower arrow). (B) Axial view of 18F-FDG PET/CT scans for hypermetabolic lesion in the peritoneum. (C) Axial view of 18F-FDG PET/CT scans for hypermetabolic lesion in the left thigh.

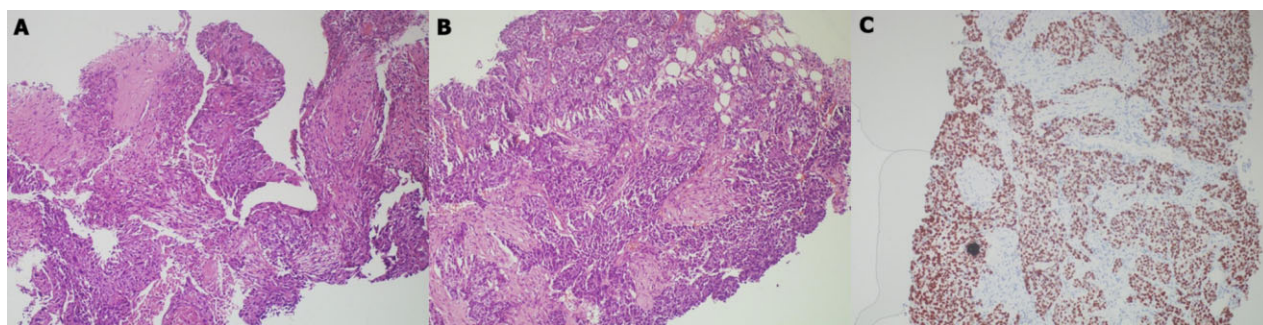


Figure 4 The metastatic thigh muscle tumor shows metastatic squamous cell carcinoma (A, hematoxylin and eosin, $\times 100$). The metastatic peritoneal tumor shows many squamous carcinoma cell nests, consistent with metastatic squamous cell carcinoma (B, hematoxylin and eosin), and positive for p63 immunostaining (C, Papanicolaou's stain and Pap, $\times 100$).

Disclosure

The authors report no conflict of interest.

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