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Metastatic squamous cell carcinoma of the lung mimicking multiple bone abscesses

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Abstract

Squamous cell carcinoma of the lung is known to metastasize to the bones, but a presentation similar to bone abscess is rare. We encountered a case with bone metastases that mimicked bone abscess, which delayed the diagnosis of squamous cell lung carcinoma. A 67-year-old man presented with a left upper lung infiltrate and lytic lesions on the left first rib and right fifth rib. In consideration of a possible infectious process, cultures of the aspirate from the right fifth rib lesion and blood were taken; however, results were non-specific. Thereafter, bronchoscopic biopsy of the left upper lung nodule and ultrasound-guided biopsy of the right fifth rib lesion yielded a diagnosis of squamous cell lung carcinoma with bone metastases. Metastatic squamous cell lung carcinoma may have imaging characteristics of bone abscess and should be considered in the differential diagnosis of such lesions.

Introduction

The number of lung cancer cases diagnosed incidentally on routine medical examination has been increasing; however, the majority of cases continue to manifest with symptoms of distant metastases. Bone metastases from a primary squamous cell carcinoma of the lung are common, but imaging mirroring bone abscess formation is unusual and establishing a precise diagnosis can be challenging.

Case Report

A 67-year-old Japanese man presented with a 2-month history of cough, fever, appetite loss, and general malaise. He was on medication for type II diabetes and had stopped smoking 3 years ago (40 pack years). Physical examination was normal. His radiograph at the onset of his symptoms showed a lobar infiltrative shadow in the left upper lobe with a subsequent thoracic computed tomography (CT) revealing a left upper lobe infiltrate and destructive expansile fluid-filled bone lesion on the left first rib (Fig. 1). Routine laboratory tests showed leucocytosis (white blood cell count: 12,500/μL), thrombocytosis (platelet count: 530,000/μL), and a high C-reactive protein (9.47 mg/dL).

CT-guided percutaneous core needle biopsy (CNB) and percutaneous fine needle aspiration (FNA) biopsy of the rib lesion showed inflammatory cells without bacteria and malignant cells. Due to an initial suspicion of osteomyelitis with pneumonia, such as those caused by actinomycosis, oral antibiotics were administered. After antibiotic treatment, the parenchymal changes improved although the rib lesion showed little change.

Two months later, right-sided chest pain developed and he was found to have a new abscess-like lesion on the right fifth rib (Fig. 2). Percutaneous needle aspiration and core biopsies were taken together with blood cultures to investigate the infection. Results demonstrated no growth or evidence of malignancy.

Repeat imaging showed that the left upper lung infiltrate now appeared as a nodular lesion. Bronchoscopic biopsy of the left upper lung nodule and ultrasound-guided CNB of the right fifth rib lesion were performed. Histological examination of the lung nodule showed squamous cell carcinoma, with a subcutaneous lesion revealing metastatic squamous cell carcinoma.

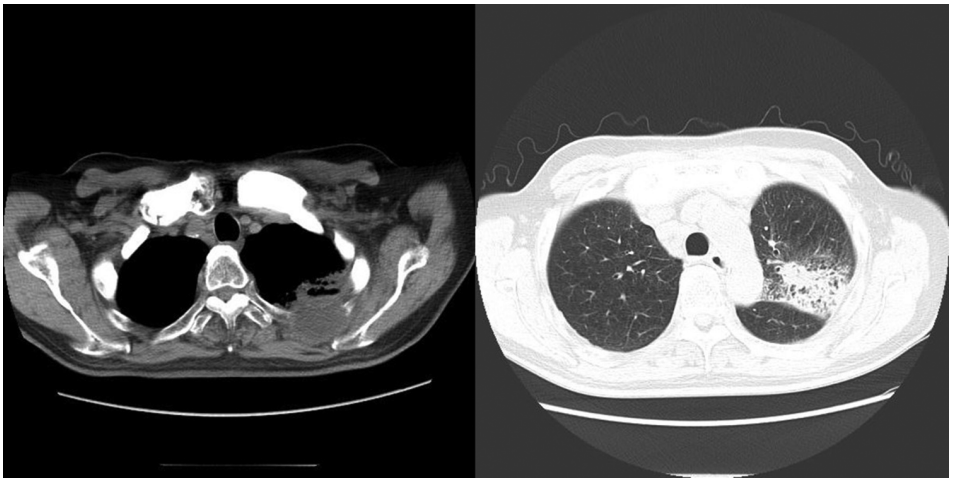

Figure 1. Chest computed tomography scan showing left upper lobe infiltrate and lytic lesion of the left first rib.

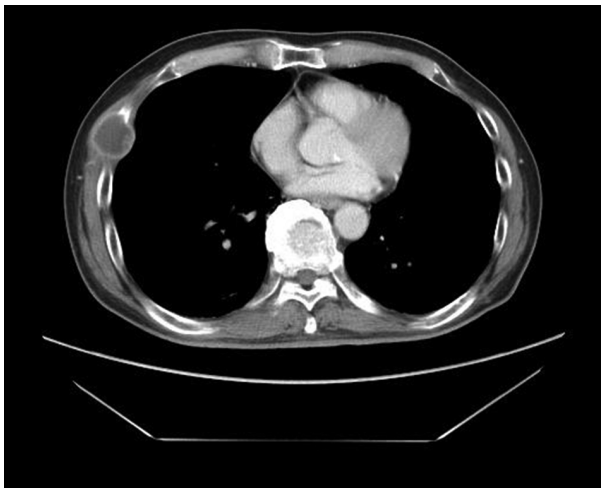

Figure 2. Chest computed tomography scan showing a new abscess-like lesion of the right fifth rib.

Discussion

This case demonstrated that bone metastases can present as abscess-like lesions, which, when multiple, should prompt the consideration of malignant metastases. In such cases, ultrasound-guided CNB may be useful for diagnosis.

Lung carcinoma metastasizing to the bones has been reported to be frequent, occurring in about 30.9% of patients with lung cancer [1]. However, there has only been one report of abscess-like bone metastases [2]. In the present case, we initially focused on identifying a specific infectious aetiology for the lesions that had characteristic imaging findings of pneumonia and multiple bone abscesses, without considering a malignant cause. Other authors have reported similar situations in other organ systems, such as the lungs and the liver [3].

Ultrasound-guided CNB may be useful in cases with suspected lung squamous cell carcinoma metastases. FNA cytology can be of benefit in diagnosing an abscess; however, it may not be adequate in demonstrating the presence of malignant cells, as shown in this case. In a previous case report, a definitive diagnosis of malignancy was confirmed by biopsy of the lesion wall [2]. We advocate repeat percutaneous CNB for patients not responding to antibiotics.

In conclusion, squamous cell lung carcinoma metastasizing to the bone may mimic bone abscess and ultrasound-guided CNB should be considered to achieve an accurate diagnosis. In patients presenting with abscess-like bone lesions unresponsive to antibiotics, the possibility of malignancy should be considered, and repeat biopsy performed to improve diagnostic yield.

Disclosure Statements

No conflict of interest.

Appropriate written informed consent was obtained for publication of this case report and accompanying images.

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