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The Efficacy of PET/CT Scan in CT-Guided Needle Biopsy of Large Lung Mass

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ABSTRACT

In CT-guided needle biopsy of large lung mass, false-negative error could occur due to the necrotic portion of lung mass. If a biopsy is performed on a metabolically active lesion with reference to PET/CT scan, it would help to increase the chances of achieving an accurate diagnosis.

A 74-year-old male patient visited our hospital for evaluation of right lung mass. A chest computed tomography (CT) revealed a 5.0 cm sized spiculated mass in right upper lobe anterior segment with direct invasion to right middle lobe. CT-guided lung biopsy (Figure 1) was performed and proliferation of spindle cells and epithelial cells with coagulative necrosis were diagnosed. Considering the possibility of false-negative error, we decided to take a positron emission tomography (PET)/CT scan and repeat the biopsy with reference to the result of PET/CT scan. The PET/CT scan showed little active metabolism in the previous biopsy site (Figure 1). A re-biopsy was performed on a metabolically active lesion with reference to PET/CT scan and non-small cell lung carcinoma was diagnosed (Figure 2). Unlike pleural masses and small lung masses, large lung masses are more likely to contain a necrotic portion. Diagnostic errors due to necrosis of large lung masses have been previously described [1]. Some studies have reported that the diagnostic success rate might

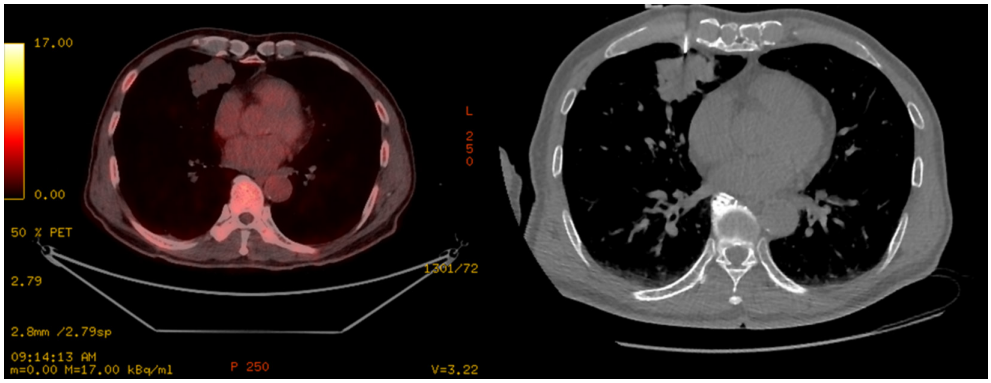

FIGURE 1 | The first biopsy was performed on the low metabolic lesion on PET/CT scan.

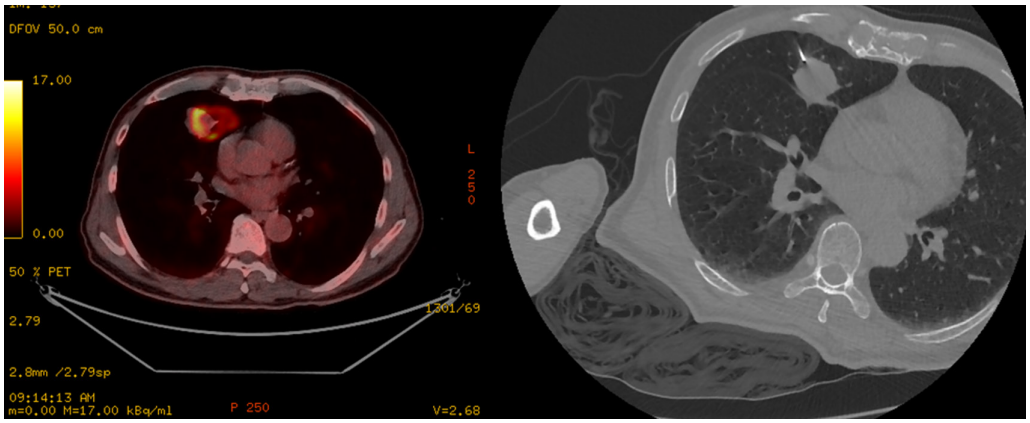

FIGURE 2 | The re-biopsy needle was placed on the metabolically active lesion on PET/CT scan.

be improved with biopsy on a metabolically active lesion with reference to PET/CT scan [2–4]. When performing a percutaneous needle biopsy on a large lung mass that is strongly suspected malignancy, we believe that the diagnostic accuracy could be improved by performing a biopsy on a metabolically active lesion referring to PET/CT scan.

Author Contributions

Min Kyun Kang was involved in investigation, writing – original draft, writing – review, editing, and final approval of the manuscript.

Ethics Statement

The author declares that appropriate written informed consent was obtained for the publication of this manuscript and accompanying images.

Conflicts of Interest

The author declares no conflicts of interest.

Data Availability Statement

The data in this study are available from the corresponding author upon reasonable request.

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