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CLINICAL IMAGE

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Physiologic ^{18}F-FDG muscle uptake in severe COPD: Implications for accurate lung cancer staging

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Key message

Recognizing physiologic ^{18}F-fluorodeoxyglucose (FDG) uptake in severe COPD is crucial to avoid mistaking it for lung cancer metastasis. Correlating ^{18}F-FDG avid lesions with co-registered computed tomography is essential for accurate lung cancer staging and preventing unnecessary interventions.

KEYWORDS

chronic obstructive pulmonary disease, lung cancer, positron emission tomography/computed tomography

CLINICAL IMAGE

An 82-year-old man with a history of chronic obstructive pulmonary disease (COPD) presented for evaluation of a right lower lobe nodule. The patient had dyspnea on exertion and well-developed respiratory muscles. His spirometry results showed a forced expiratory volume in 1 s (FEV_1)/forced vital capacity ratio of 37.5% and predicted FEV_1 ratio of 37.4%, indicating severe COPD. Positron emission tomography/computed tomography revealed fluorine-18 fluorodeoxyglucose (^{18}F-FDG) uptake in his scalene muscles on both sides, in addition to the right lower lobe nodule (Figure 1).

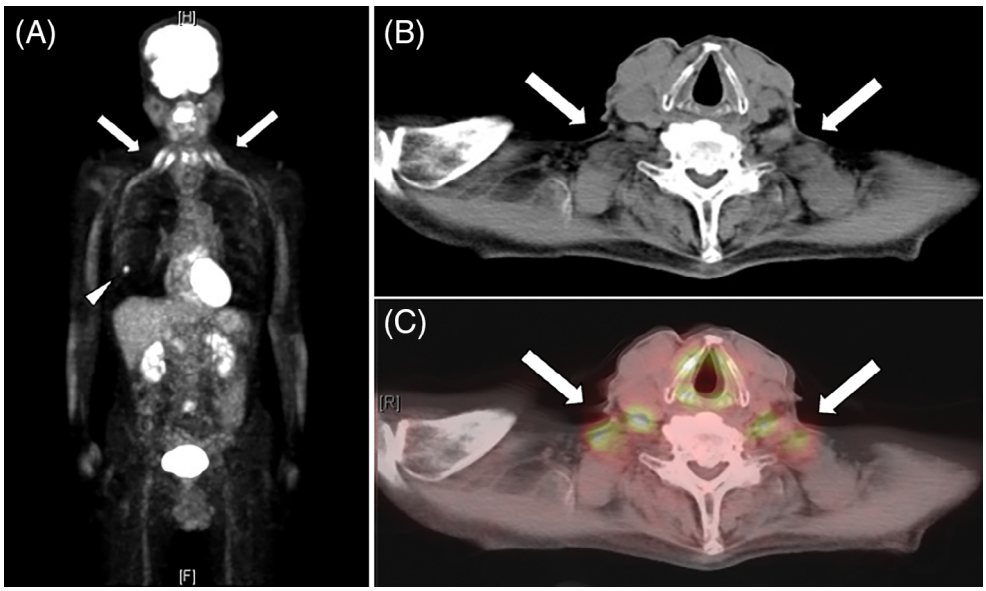

FIGURE 1 (A) A positron emission tomography image shows bilateral uptake in both supraclavicular regions (white arrows), in addition to the right lower lobe nodule (white arrowhead). (B) A corresponding computed tomography image (B) and fusion image (C) show uptake in both scalene muscles (white arrows)

^{18}F-FDG accumulates in pathologic lesions, and minimal ^{18}F-FDG may be observed in healthy muscles. However, physiologic ^{18}F-FDG uptake is seen in patients with COPD due to excessive metabolic activity.[1] Osman et al. reported that the frequency of increased uptake in the scalene muscles was higher in patients with severe COPD than in those with mild COPD or no COPD.[2] In this case, ^{18}F-FDG uptake localized in the neck could have been mistaken for lung cancer metastasis in the supraclavicular region. When clinicians see increased ^{18}F-FDG uptake in the supraclavicular region in patients with severe COPD, the possibility of physiologic uptake should be considered. Clinicians should be aware of this phenomenon and exercise caution when staging lung cancer in these patients to avoid misdiagnosis and unnecessary interventions.

AUTHOR CONTRIBUTIONS

Yuma Yoshida and Satoshi Ikeo conceptualized and drafted the initial manuscript. All authors reviewed and edited the manuscript.

CONFLICT OF INTEREST STATEMENT

None declared.

DATA AVAILABILITY STATEMENT

Data sharing not applicable to this article as no datasets were generated or analysed during the current study

ETHICS STATEMENT

The authors declared that an appropriate written informed consent from the patient was obtained for publication.

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