Interesting Image

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^{18}F-FDG PET/CT Detection of Extensive Pleural Metastasis in Rare Malignancy Thymoma

Nadir Bir Malignite Olan Timomada Yaygın Plevral Metastazın ^{18}F-FDG PET/BT ile Tespiti

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Abstract

The majority of metastatic pleural lesions are caused by malignancies such as bronchogenic carcinoma (40%), breast cancer (20%), lymphoma (10%), and ovarian or gastric carcinomas (5%). However, pleural metastases from thymoma are extremely rare. In this report, we present the ^{18}F-fluorodeoxyglucose (^{18}F-FDG) positron emission tomography/computed tomography (PET/CT) imaging findings of a patient with thymoma and extensive pleural metastases. Although biopsy remains the gold standard for diagnosis, it is important to consider high grade thymoma in the differential diagnosis, as extensive pleural involvement observed on ^{18}F-FDG PET/CT imaging can mimic both primary and metastatic pleural malignancies. Recognizing this possibility can assist in more accurate interpretation of imaging findings.

Keywords: Thymoma, pleura, metastasis, ^{18}FDG, PET/CT

Öz

Metastatik plevral lezyonların büyük çoğunluğunu bronkojenik karsinom (%40), meme kanseri (%20), lenfoma (%10), over ve gastrik kanserler (%5) gibi malignitelerden kaynaklanmaktadır. Timomanın plevral metastazları ise oldukça nadir görülmektedir. Bu olguda yaygın plevral metastaz saptanan timoma hastasına ait ^{18}F-florodeoksiglukoz (^{18}F-FDG) pozitron emisyon tomografi/bilgisayarlı tomografi (PET/BT) görüntülerini paylaşıyoruz. Her ne kadar altın standart biyopsi tanısı olsa da, yaygın plevral tutulumların ^{18}F-FDG PET/CT görüntüsü itibarı ile primer ve metastatik plevral maligniteleri taklit edebileceğinden ayırıcı tanıda yüksek grade timomayı hatırlamak görüntüyü daha doğru yorumlamaya yardımcı olacaktır.

Anahtar kelimeler: Timoma, plevral, metastaz, ^{18}FDG, PET/BT

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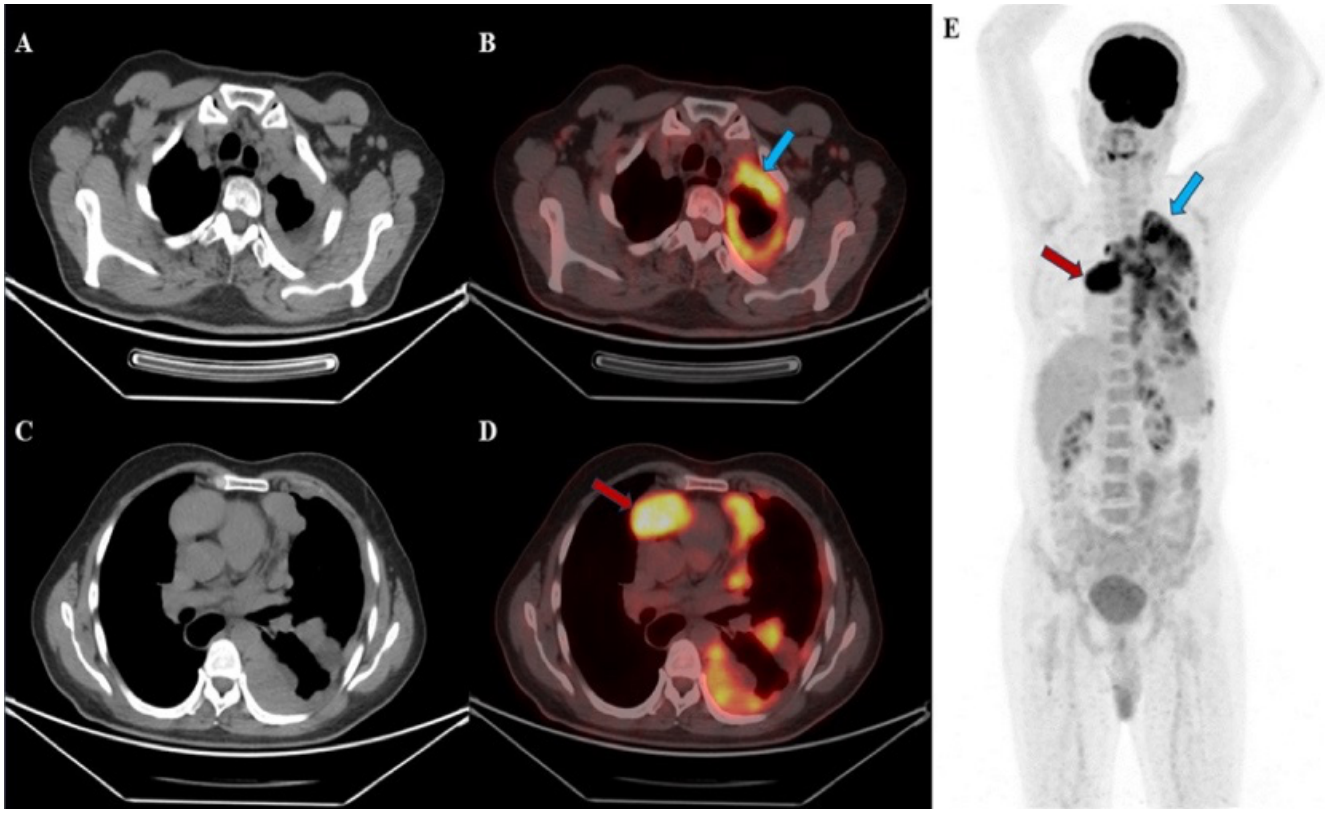

Figure 1. A 49-year-old male presented to the outpatient clinic with progressive shortness of breath and a persistent cough. Thoracic computed tomography (CT) demonstrated multiple nodular masses, measuring up to 4 cm, involving the mediastinal, costal, and diaphragmatic pleura (Figures A, C). Additional conglomerated nodular lesions were identified in the anterior mediastinum. Histopathological evaluation of a tru-cut biopsy from a suspected primary pleural malignancy confirmed the presence of a malignant thymic epithelial neoplasm, consistent with thymoma. Immunohistochemical staining showed neoplastic cells positive for TdT, PanCK, and p63, while calretinin and thyroid transcription factor-1 were negative. Due to limited biopsy material, precise World Health Organization (WHO) subtype classification could not be performed.
^{18}F-fluorodeoxyglucose (^{18}F-FDG) positron emission tomography (PET))/CT imaging provided further diagnostic confirmation, revealing increased ^{18}F-FDG uptake in a soft tissue lesion located in the anterior mediastinum measuring 64 × 44 mm (Figures D, E, red arrow) with a maximum standardized uptake value (SUV_{max}) of 11.11. Additional elevated FDG uptake was observed in pleural masses in the left hemithorax (Figures B, D, blue arrow) with an SUV_{max} of 7.99. No pleural effusion was identified, and physiological FDG distribution was noted in other regions of the body (Figure E).
Thymomas are classified into five histological subtypes (A, AB, B1, B2, and B3) based on the WHO classification. Subtypes A, AB, and B1 are considered low risk for recurrence, whereas subtypes B2 and B3 are categorized as high-risk, with a greater propensity for metastasis and recurrence (1). Thymomas are rare neoplasms that generally grow slowly and exhibit local spread. Common metastatic sites include the pleura, pericardium, and diaphragm, while extrathoracic metastases are uncommon (2).
Although pleural metastases of high-risk thymoma are rare, they can mimic the imaging features of primary pleural malignancies or metastatic pleural disease (3). Therefore, it is important to consider high-grade thymoma in the differential diagnosis when pleural involvement is observed. Careful evaluation of the anterior mediastinum in such cases may facilitate accurate diagnosis and significantly impact treatment planning. This case highlights the diagnostic value of ^{18}F-FDG PET/CT and underscores its critical role in differentiating thymomas with pleural involvement (4,5).

Ethics

Informed Consent: The patient consent was obtained.

Footnotes

Authorship Contributions

Surgical and Medical Practices: M.O.K., B.O.T., Concept: M.O.K., B.O.T., Design: M.O.K., B.O.T., Data Collection or Processing: M.O.K., B.O.T., Analysis or Interpretation: M.O.K., B.O.T., Literature Search: M.O.K., B.O.T., Writing: M.O.K., B.O.T.

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