

Foreign Body Reaction Mimicking Relapse in Primary Mediastinal B-Cell Lymphoma: A Diagnostic Pitfall

Primer Mediastinal B-Hücreli Lenfomada Nüksü Taklit Eden Tanısal Bir Tuzak: Yabancı Cisim Reaksiyonu

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To the Editor,

Primary mediastinal large B-cell lymphoma (PMBCL) represents a rare and distinct clinicopathologic subtype of aggressive B-cell non-Hodgkin lymphoma, accounting for approximately 2%–3% of all NHL cases [1].

Although most patients demonstrate favorable initial responses to immunochemotherapy regimens, the persistence of residual mediastinal masses after treatment poses a well-recognized diagnostic challenge. Post-therapeutic changes, including fibrosis, necrosis, and inflammatory reactions, may lead to a substantial rate of false-positive findings on cross-sectional and functional imaging modalities [2]. Therefore, accurately distinguishing between true residual or recurrent disease and benign posttreatment changes such as fibrotic remodeling or foreign body-induced granulomatous reactions is important to prevent misclassification, overtreatment, and unnecessary invasive procedures. [3,4].

A 22-year-old female with no significant medical history presented in May 2023 with progressive dyspnea. Thoracic computed tomography (CT) revealed a 9.5 × 5 cm lobulated, necrotic anterior mediastinal mass encasing adjacent vascular structures. Positron emission tomography/CT (PET/CT) demonstrated intense 18F-fluorodeoxyglucose (FDG) uptake (SUVmax: 14.1). Histopathologic examination of biopsy material established the diagnosis of PMBCL.

She subsequently received six cycles of dose-adjusted rituximab, etoposide, prednisone, vincristine, cyclophosphamide, and doxorubicin between June and November 2023. In March 2024, PET/CT demonstrated a Deauville score of 2, consistent with complete metabolic response. The patient remained under follow-up with serial chest radiographs. In February 2025, chest CT was performed due to suspicion of residual mass progression. Although no increase in size was detected, PET/CT was repeated because of new calcifications. Imaging in April 2025 demonstrated increased metabolic activity (SUVmax: 4.4, Deauville 4) in the residual anterior mediastinal lesion (Figure 1). Fine needle aspiration and cytological evaluation were performed.

Histopathologic and histochemical analysis demonstrated multinucleated foreign body-type giant cells, abundant macrophages, and necrotic debris. Although fine needle aspiration may have limitations in completely excluding residual lymphoma, no malignant cells were identified (Figure 1). In addition,, refractile geometric material compatible with oxidized cellulose (Surgicel), likely related to previous surgical intervention, was noted. The absence of malignant cells together with the characteristic foreign body-type giant cell reaction supported a benign foreign body granulomatous reaction rather than lymphoma recurrence.. Follow-up PET/CT in June 2025 showed no new pathological uptake, and the mediastinal lesion remained stable. The patient has continued to do well clinically and remains asymptomatic.

This case highlights a diagnostic pitfall in the post-treatment surveillance of PMBCL. Residual FDG uptake in PET/CT can mimic recurrence but may reflect post-therapeutic changes such as fibrosis, infection, or foreign body reaction [5]. In this patient, FDG-avid lesions were initially interpreted as possible relapse, but histopathology revealed surgicel-induced granulomatous inflammation.

Clinicians must be cautious interpreting residual or recurrent FDG uptake, especially in regions of prior intervention. Tissue diagnosis remains essential when imaging findings are ambiguous. Over-reliance on PET/CT alone can lead to unnecessary interventions, anxiety, and overtreatment.

In conclusion, residual FDG uptake in post-therapy mediastinal masses of patients with PMBCL does not invariably represent active disease. This case highlights the necessity of histopathologic confirmation before management decisions are made solely on the basis of imaging findings. Foreign body reactions should be considered in the differential diagnosis of persistent PET-positive lesions, especially following thoracic surgery or biopsy.

Keywords: Primary mediastinal large B-cell lymphoma; Positron emission tomography; Fluorodeoxyglucose (FDG); False positive; Foreign body reaction; Granulomatous inflammation

Anahtar kelimeler: Florodeoksiglukoz (FDG); Granulomatöz inflamasyon; Pozitron emisyon tomografisi; Primer mediastinal büyük B-hücreli lenfoma; Yabancı cisim reaksiyonu; Yanlış pozitiflik

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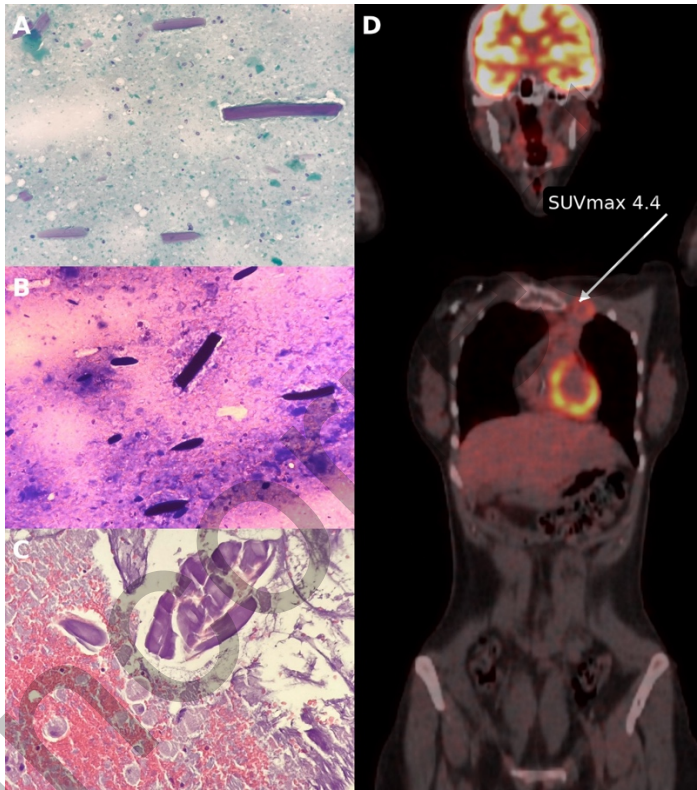


Figure 1. A) Foreign body-like material demonstrated by Papanicolaou (PAP) stain. B) Foreign body-like material demonstrated by May-Grünwald-Giemsa (MGG) stain. C) Multinucleated foreign body-type giant cells, abundant macrophages, and necrotic debris (hematoxylin and eosin). D) Positron emission tomography/computed tomography (PET/CT) image showing a lesion in the left first intercostal space with a SUVmax of 4.4.