

## Case Report

# Fluorine-18-FDG PET/CT finding of cardiac lymphoma - a case report

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## Case report

An 82-year-old man with increasing shortness of breath. Pericardial effusion and high level of inflammatory reaction was found.

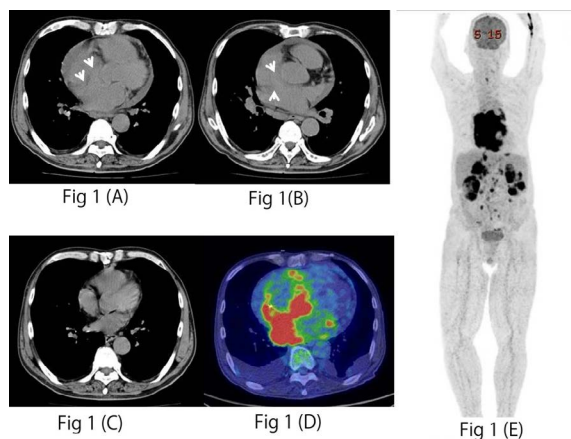
First, this patient was diagnosed with tuberculous pericarditis because of high adenosine deaminase (ADA) in pericardial effusion and positive T-SPOT. Regardless of the treatment of the antituberculous agent, the condition got worse.

Thereafter, FDG-PET/CT was performed in consideration of malignant lymphoma based on the high level of soluble interleukin-2 receptor (sIL-2R) and lactate dehydrogenase (LDH), which revealed mass located in interatrial septum and aortic root of the myocardium with high uptake.

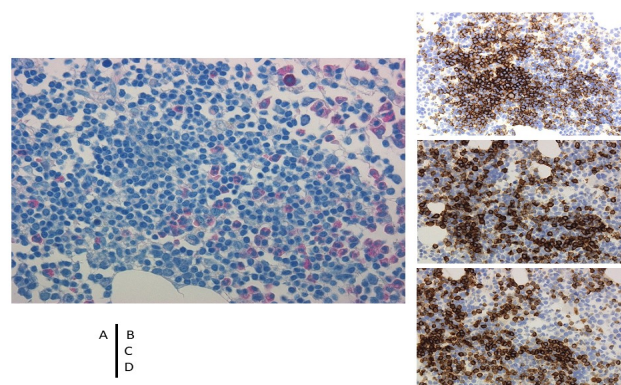
FDG-PET/CT showed an infiltrating mass that extended along epicardial fat planes to involve the interatrial septum and aortic root (Figure 1A, B). CT with contrast medium was not performed due to a decrease in renal function. An antibody to HIV was not detected.

Abnormal FDG uptake is found in the cardiac mass (SUVmax 12.2), paraaortic region, right side of thoracic vertebrae, and spotted lesion in bilateral kidney (Figure 1D, E).

CT scan of 1.5 year ago showed no findings including cardiac mass (Figure 1C), and CT scan of 2 month ago showed cardiac mass mainly, but other new lesions were not detected. In this retrospective imaging review, we speculated that cardiac mass was main lesion and another abdominal lesion developed later (Figure 2).



**Figure 1.** (CT: 2 months ago, of PET (A, B) and 1.5 year ago of PET (C) PET: axial image (D) and MIP (E)). White arrows indicate tumor infiltration



**Figure 2.** Bone marrow biopsy revealed disseminated accumulation of small low-grade atypical lymphocytes (A) (H&E stain×1000). Immunohistologically, these accumulated lymphocytes were CD20+ (B), CD5+ (C), cyclin D1-, CD10-, bcl-2+, and CD23-. The final pathological diagnosis was SLL

Small lymphocytic lymphoma (SLL) was confirmed by bone marrow biopsy.

## Discussion

Primary cardiac lymphoma rarely occurs and accounts for 1.3% of primary cardiac tumors and 0.5% of extranodal lymphomas, the right atrium is most common location, and diffuse large B-cell lymphomas (DLBCL) is usual form [1-4].

In the present case, the final diagnosis was small lymphocytic lymphoma (SLL), which was considered to be low grade malignancy, but in some cases, the prognosis was unfavorable. SLL is essentially the same as chronic lymphocytic leukemia (CLL).

About 10% (3%-16%) of the patients with SLL/CLL develop Richter's syndrome (RS) with transformation into an aggressive lymphoma. Falchi, *et al.*, reported that FDG/PET is a useful diagnostic tool for patients with CLL and suspected transformation and the uptake of FDG was related to the degree of malignancy [5,6]. In this patient,

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strong uptake was found in cardiac mass, on the other hand, the uptake of bone marrow was not so high, and therefore, we speculated clinically that RS was suspected in this patient with SLL.

The prognosis for patients with cardiac lymphoma is determined by both progression of primary disease or secondary heart failure. Therefore, cardiac lymphoma is considered to be oncological emergency [1].

Actually, the diagnosis is often difficult, early diagnosis and treatment is a key to success for good outcome [1].

In patients with pericardial effusion, it is considered to be difficult to point out the possibility of cardiac tumor in the differential diagnosis, which included tumor, effects of radiation therapy, drug-induced pericarditis, uremia, and infection [7].

In clinical situation, review of the patients in details can be most important, and especially to find cardiac mass lesion to diagnose as prompt as possible. Although definitive diagnosis should be based on pathological examination, it is often difficult to perform biopsy in poorly general condition. FDG-PET is a useful imaging modality to diagnose the degree of malignancy and select an appropriate biopsy site not to develop complications [8].

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