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F-18 FDG PET/CT in a Soft Tissue Tumor with Pericardial Metastasis

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Abstract

We present a patient with a massive soft tissue lesion originating from the right thigh and a pathological diagnosis reported as a spindle cell malignant mesenchymal tumor with massive pericardial metastasis with FDG-PET/BT findings.

Keywords**:** *pericardium , metastasis, FDG, soft tissue tumor.*

Introduction

Cardiac metastases can involve any part of the heart. However, the most common site of metastasis is the pericardium with a rate of 59%. Myocardium and endocardium are involved in 29% and 12%, respectively. It has been reported that almost all primary tumor types, except primary central nervous system tumors, metastasize to the heart. Carcinomas account for 76% of cardiac metastases. Lymphoma 13.6%, leukemia 3.2%, melanoma 2.6%, sarcoma 2.6%, among others (1). According to autopsy reports, cardiac metastases were detected in 25% of patients with soft tissue sarcoma. Various histological tumor subtypes with pericardial involvement from malignant soft tissue tumors are encountered in the literature (2-5).

Case Report

A 77-years-old female patient applied to the cardiology clinic due to dyspnea and was diagnosed with progressive heart failure. Extensive pleural and pericardial fluid was detected in echocardiography, Ca-125 level was found to be high in the examinations performed, and she was referred to our department for FDG PET-CT to investigate possible primary malignancy. After 12 hours of fasting and restriction of movement, the

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blood glucose was 124 mg/dl and approximately 1 hour after 5 mCi F-18 FDG injection, PET/CT imaging was performed in 3D mode for 1 minute per bed, using oral contrast in the craniocaudal direction from the calvarium to the sole of the foot. Widespread hypermetabolic thickenings (SUVmax=18.7) on the patient's pericardial surfaces and left prevascular, paratracheal, right prevascular and left perihilar hypermetabolic lymph nodes, the largest 17 mm in the mediastinum, with diffuse pleural and pericardial fluid and subcutaneous tissue muscle planes and mild hypermetabolic hypodense mass of 57 mm in the widest part (SUVmax= 3.2) at the level of the right femoral proximal diaphysis as well as hypermetabolic lesions of 27 mm in the medial left tibia proximal diaphysis were defined (Figure 1). In pleural fluid cytology; lymphoid cell increase was observed and reactive mesothelial cells were observed among these lymphoid cells (Figure 2). Because of the very inflammatory background in the cytology material, malignancy was not considered. Afterwards, the patient was taken to oncology follow-up in our hospital. For the primary diagnosis, a trucut biopsy was taken from a hypoechoic lesion with irregular borders, 40x66 mm in size, located deep in the subcutaneous adipose tissue in the lateral part close to the distal right thigh, under US guidance. The biopsy result was reported as myxoid spindle cell mesenchymal tumor (Figure 2).

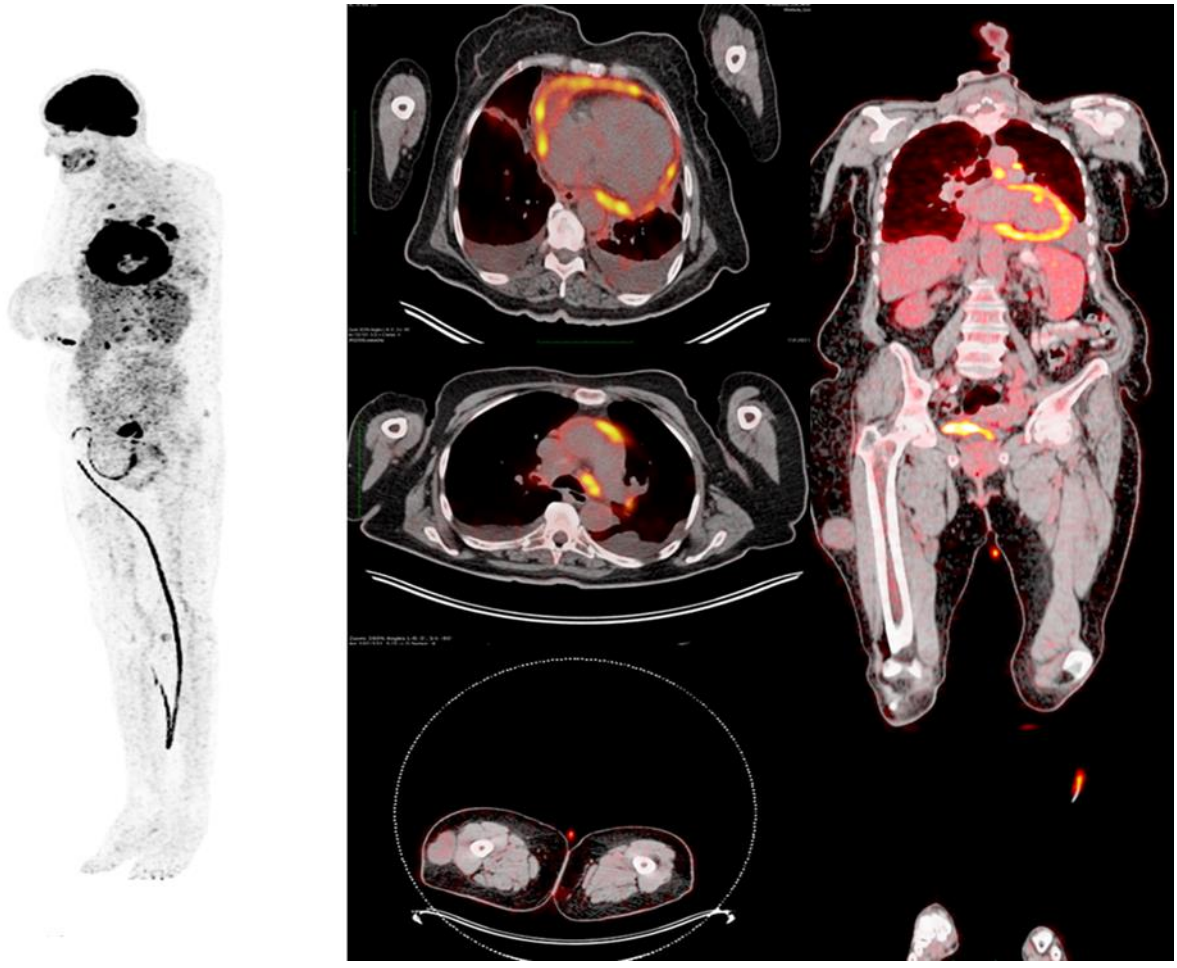

Figure 1.: Left anterior oblique MIP image of massive pericardial involvement on the left. On right; PET-CT images of pericardial involvement on the right and lesions on the right lateral thigh in axial and coronal sections.

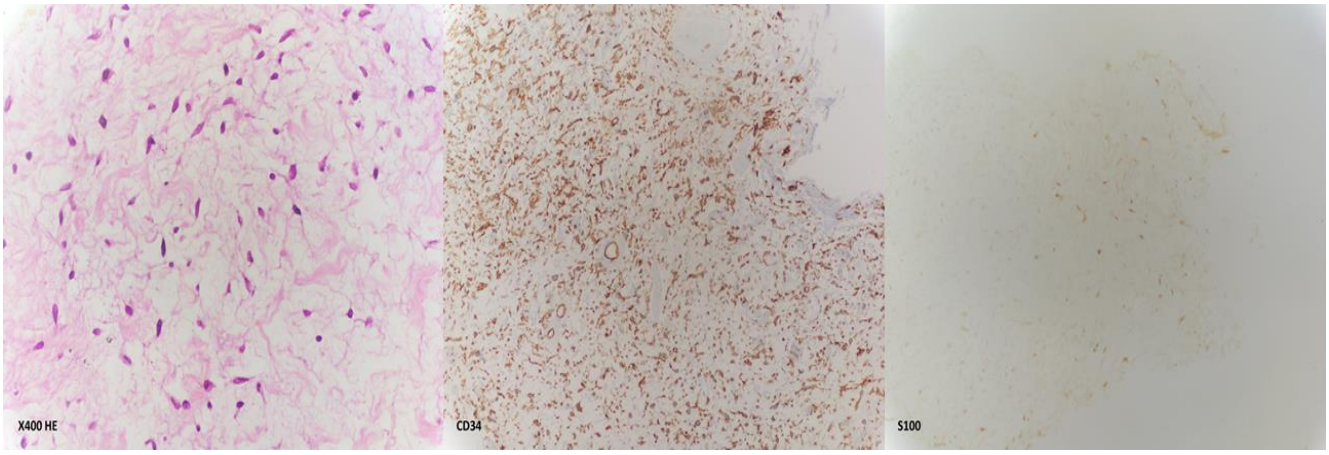

Figure 2.: In the tru-cut biopsy material in the irregular limited mass localized in the subcutaneous adipose tissue on the lateral right thigh; **a**t high magnification in histological sections, mesenchymal cells in a low cellularity, oval spindle-shaped uniform appearance and interspersed fibrous collagen bundles are observed on the myxoid background. As a result of the immunohistochemical studies, it was observed that these spindle cells were stained with S100 and CD34.

Conclusion

Cardiac metastases are much more common than primary cardiac tumors. The heart metastases are rare due to the structure of the lymphatic system in the heart. Cardiac metastases are observed in the pericardium, myocardium, and endocardium respectively according to frequency. This case report is the presentation of rare massive and diffuse pericardial involvement of a soft tissue sarcoma with FDG PET-CT images firtstly in the literature as far as we know.

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Authorship Contributions

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