

Primary Malignant Pericardial Mesothelioma Mimicking Pericardial Metastasis from Adenocarcinoma

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An 85-year-old man was admitted with dyspnea on exertion and general fatigue. He was a retired school teacher without obvious history of asbestos exposure. Chest radiograph revealed cardiomegaly, and a large pericardial effusion was found from echocardiogram, which was subsequently drained by ultrasound-guided needle aspiration. Its hyaluronic acid level was 32,000 ng/ml (within normal range). Cytologic examination was positive, suggesting adenocarcinoma. The F-18 fluorodeoxyglucose positron emission tomography scan detected abnormal aggregations around the ascending aorta, pulmonary artery, and pericardium, but no primary focus was found (Figure 1). Pleural thickening and pleural plaques were not detected. A diagnosis of adenocarcinoma and pericardial metastasis of unknown origin was made. He died about 3 months after diagnosis due to right cardiac failure resulting from constrictive pericarditis. Au-

topsy revealed tumor had infiltrated and proliferated in the pericardium and myocardium and invaded the pericardial cavity (Figure 2a). Tumor was not found in the pleura. Pleural plaques were found, but asbestos bodies were not observed. Histologic examination revealed atypical proliferation of epithelioid cells (Figure 2b) and spindle cells (Figure 2c). Immunologic staining for calretinin was positive in the epithelioid and sarcomatous tumor cell nuclei and cytoplasm (Figure 2d). We diagnosed diffuse and biphasic primary malignant pericardial mesothelioma (PMPM).

PMPM is extremely rare and represents 0.7% of all mesotheliomas.¹ In this case, the patient was originally misdiagnosed with adenocarcinoma by pericardial effusion cytology. The reliability of body cavity fluid cytology is low for malignant mesothelioma; its sensitivity is reported to be 33 to 84%.² Thus, histologic and immunohistochemical studies should be performed when PMPM is clinically suspected, even if adenocarcinoma is diagnosed by pericardial effusion cytology.

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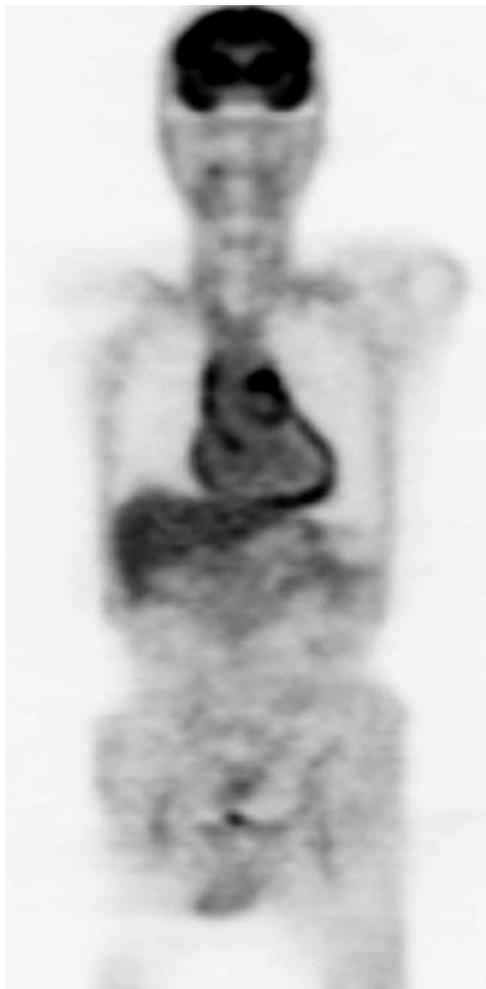


FIGURE 1. F-18 fluorodeoxyglucose positron emission tomography scan showing aggregations around the ascending aorta, pulmonary artery, and the pericardium.

FIGURE 2. *a*, Gross pathologic specimen showing that the heart was entirely encased with a yellowish tumor occupying the pericardial space. *b*, Histologic analysis revealed atypical proliferation of epithelioid cells forming large and small glandular ducts (hematoxylin and eosin stain; original magnification, $\times 100$). *c*, Histologic analysis revealed atypical and irregular proliferation of spindle cells (hematoxylin and eosin stain; original magnification, $\times 100$). *d*, Immunohistochemical staining for calretinin was positive in the nuclei and cytoplasm of the epithelioid and sarcomatous tumor cells (original magnification, $\times 100$).

