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Extensive Invasive Cardiothoracic Aspergillosis

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A 47-year-old man was admitted to the University Hospital with complaints of breathlessness (New York Heart Association class III), dry cough, and fever of 2 months' duration. Physical examination showed a firm subcutaneous nodule 1.5×2 cm in size on the left pectoral area. Cardiovascular examination suggested moderate pulmonary arterial hypertension and tricuspid regurgitation. Respiratory examination revealed right-sided pleural effusion. The ECG showed absent P waves with junctional escape rhythm. Holter examination showed persistent junctional escape rhythm with absent P waves.

Transthoracic echocardiographic examination showed a grossly infiltrated and thickened left atrium (LA), left ventricle, and interatrial and ventricular septum. Parts of the right atrium and right ventricle also showed similar features. Transesophageal echocardiography further delineated the morphology of the cardiac chambers (Figure 1A), and there was a lobulated mass in the LA with filamentous structures hanging from it (Figure 1B). The infiltrates in the LA encroached on the pulmonary vein orifices, causing turbulence suggestive of obstruction to flow.

Magnetic resonance imaging of the chest on T₁- and T₂-weighted images showed a hypointense infiltrating mass lesion extending from the anterior to the middle mediastinum involving the heart. The lesion was compressing the right lower lobe bronchus and right pulmonary artery, resulting in right lung lower lobe collapse with pleural effusion (Figure

2A). Contrast-enhanced computed tomography scanning of the chest showed extensive infiltration of the atria and ventricles by the mediastinal lesion (Figure 2B). The immunoglobulin and biochemistry profiles were unremarkable. The patient had no risk factors for immunosuppression. Excision biopsy of the subcutaneous nodule showed large areas of necrosis, epithelioid granulomas, and numerous multinucleate giant cells surrounded by eosinophils and lymphocytes. Silver methenamine staining showed numerous septate filaments branching at an acute angle (Figure 3); these features were indicative of *Aspergillus* granuloma of the subcutaneous nodule, and the culture grew *Aspergillus fumigatus*. Computed tomography-guided, fine-needle aspiration cytology from the mediastinum showed histopathological features similar to those of the subcutaneous nodule. Endomyocardial biopsy from the right atrial side of the atrial septum showed cardiac muscle fibers with anisonucleosis. Stains for fungi were negative. Even though the endomyocardial biopsy did not show fungal mycelia, the characteristic echocardiographic features, absent sinus node activity, demonstration of *Aspergillus* fungus in the adjacent mediastinum, and the subcutaneous nodule reinforced the diagnosis of cardiac aspergillosis in this patient.

Disclosures

None.

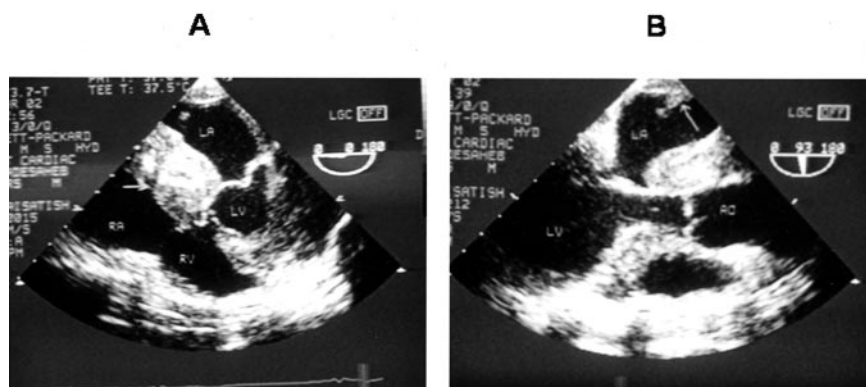


Figure 1. A, Transesophageal echocardiogram in horizontal axis showing grossly thickened interatrial (arrow) septum and left ventricle caused by infiltration by invasive aspergillosis. B, Transesophageal echocardiogram in vertical axis showing lobulated *Aspergillus* mass (arrow) hanging from the roof of the LA. LV indicates left ventricle; AO, aorta.

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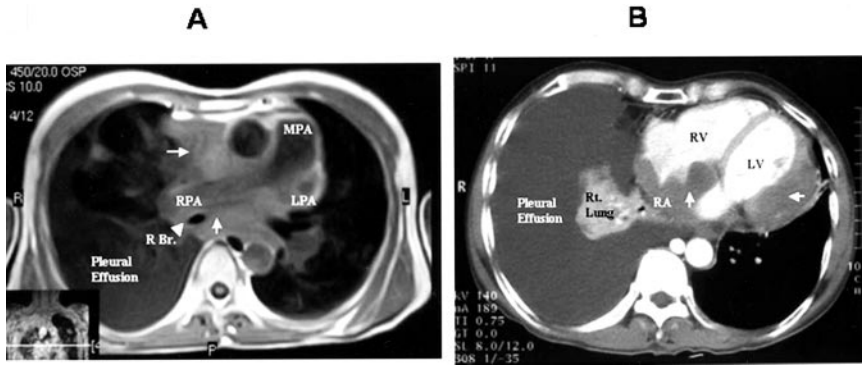


Figure 2. A, Magnetic resonance imaging of the chest showing infiltrative mass lesion in the anterior and middle mediastinum (arrows) compressing the right lower lobe bronchus (arrowhead) and right pulmonary artery. RPA indicates right pulmonary artery; MPA, main pulmonary artery; LPA, left pulmonary artery; and R Br, Right bronchus. B, Contrast-enhanced computed tomography of the chest showing infiltrative mass lesion (arrows) involving atria and ventricles. RA indicates right atrium; RV, right ventricle; LV, left ventricle; and Rt. Lung, right lung.

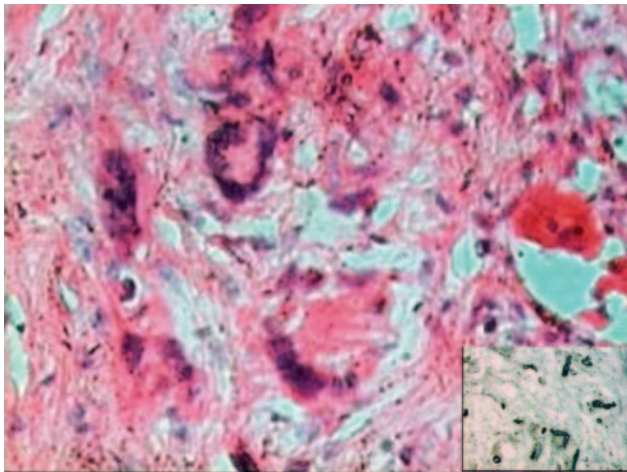


Figure 3. Photomicrograph of the subcutaneous nodule showing multinucleate foreign body giant cells with lymphocytic infiltrate and fibrosis (hematoxylin and eosin stain, original magnification $\times 40$). Inset shows thin septate parallel hyphae branching at acute angles (Gomori methenamine silver stain, original magnification $\times 40$).