Pulmonary tumour thrombotic microangiopathy

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A 69-year-old woman with metastatic breast cancer presented to the hospital with a 5-day history of progressive dyspnea. On examination, the patient had tachycardia and an oxygen saturation level of 91% while breathing ambient air. An electrocardiogram showed an S1Q3T3 pattern. Transthoracic echocardiography found a dilated right atrium and ventricle (Figure 1A). Computed tomography of her chest showed diffuse centrilobular granular shadows without pulmonary thromboembolism (Figures 1B and 1C).

Considering the patient's medical history, we suspected pulmonary tumour thrombotic microangiopathy because of the signs of right heart failure on electrocardiography and echocardiography, without any signs of pulmonary thromboembolism on computed tomography. Right-heart catheterization showed pulmonary hypertension with a mean pulmonary artery pressure of 34 (normal mean value 14 [SD 3]) mm Hg.

We obtained cytology by performing pulmonary wedge aspiration, in which a Swan–Ganz catheter was placed in the pulmonary artery wedged position and blood was gently withdrawn from the catheter. Cytology indicated adenocarcinoma (Figure 1D). We diagnosed pulmonary tumour thrombotic microangiopathy due to metastatic breast cancer. The patient underwent chemotherapy but died 2 weeks after admission to hospital.

Pulmonary tumour thrombotic microangiopathy is defined as a nonoccluding pulmonary tumour embolism accompanied by fibrocellular intimal proliferation of small pulmonary arteries, eventually leading to stenosis and occlusion of the pulmonary arteries.[1] This condition is an underrecognized cancer-related complication, causing fulminant pulmonary hypertension and mimicking pulmonary thromboembolism. The incidence rate is 0.9%–3.3% in patients with carcinoma at autopsy,[1,2] and the most common site for the primary tumour is the stomach, followed by lung and breast.[1] Chemotherapy may alter the prognosis.[2]

Although pulmonary tumour thrombotic microangiopathy is seldom diagnosed before death, pulmonary wedge aspiration cytology is a simple and useful method for diagnosis at an early stage.[3]

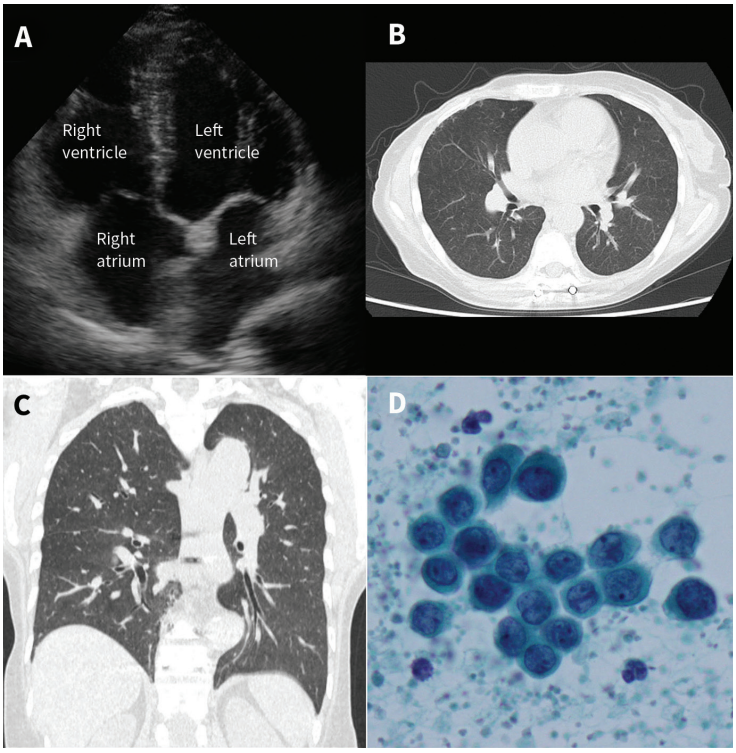

Figure 1: (A) Transthoracic echocardiography in a 69-year-old woman with metastatic breat cancer, showing a dilated right atrium and right ventricle. Computed tomography (CT) scans of the chest showing (B) axial and (C) coronal views of diffuse centrilobular granular shadows in both lungs. (D) Blood sample obtained from the pulmonary artery showing adenocarcinoma (Papanicolaou stain, original magnification × 40).

References

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