A 69-year-old woman presented as an outpatient with shortness of breath. She was a former smoker and had a past medical history of rheumatic heart disease with mild mitral stenosis and moderate-to-severe mitral insufficiency associated with atrial fibrillation. A chest x-ray revealed near-complete opacification of the right mid-to-lower lung zones, with a shift of the mediastinal structures and heart leftward (Figure 1). A mass lesion was suspected. Computed tomography (CT) was performed without contrast (due to a prior allergic reaction); it demonstrated a large, 16×16-cm right chest mass.

Because of the size of the soft-tissue mass and the patient’s smoking history, malignancy was suspected, and a CT-guided biopsy was performed. When sanguineous fluid spurted from the trocar, the procedure was terminated. Because of the bloody content, a cardiac MRI was performed to establish the association between the mass and the heart. It showed that approximately three-fourths of the right hemithorax was occupied by a massively dilated left atrium, with craniocaudal and transverse dimensions of 18 cm and anteroposterior dimensions of 14 cm (Figure 2). There was a systolic jet of mitral insufficiency, but no thrombus was identified in the left atrium. Cardiac catheterization was performed, and it revealed minimal coronary artery disease, normal left ventricular function, mild mitral stenosis, and moderate-to-severe mitral insufficiency. The patient underwent open heart surgery, which consisted of left atrial reduction with mitral valve repair.

Figure 1. Posteroanterior chest x-ray showing near-complete opacification of the right mid-to-lower lung zones, with a shift of the mediastinal structures and heart leftward. An underlying mass lesion could not be excluded. The remaining lung fields are without evidence of focal consolidation.
Figure 2. Cine-MR images of a giant left atrium. Coronal (A) and axial (B) images demonstrate almost complete filling of the right hemithorax by the left atrium.
Giant Left Atrium
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