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Case report

Massive dilation of the right atrium causes dyspnea and gastrointestinal symptoms

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A 49-year-old female patient with known primary right heart failure was admitted to the emergency department. The etiology of right ventricular failure is unknown but may have been caused by post-capillary pulmonary hypertension as she had had mechanical mitral valve replacement for stenosis before. At presentation, she suffered from progressive physical limitation, dyspnea, lack of appetite as well as from pain and discomfort in the left upper abdomen. Echocardiography revealed a massively dilated right ventricle and atrium. Drastically altered atrial and ventricular geometry prevented accurate chamber quantification. Volumetric analysis in a computerized tomography scan (the mechanical mitral valve was a contraindication for cardiac magnetic resonance imaging) showed that the right atrium was dilated to a

volume of 1.7 L (Figure 1: Cinematic VRT, right axial layer in HRCT; right atrium green and pink). The right atrium occupies the majority of the right hemithorax. Thus, in addition to the right heart failure, the dyspnea is caused by the severely reduced lung volume. The diaphragm is shifted caudally. In combination with the hepatosplenomegaly (diameter of the inferior vena cava: 56 mm) this compresses the stomach which likely causes the gastrointestinal symptoms. Right heart catheterization showed no pulmonary hypertension. The patient is currently on the waiting list for heart transplantation. This case illustrates an extreme example of right heart failure in which the mechanical compression of the lungs and stomach crucially adds to the symptom complex.

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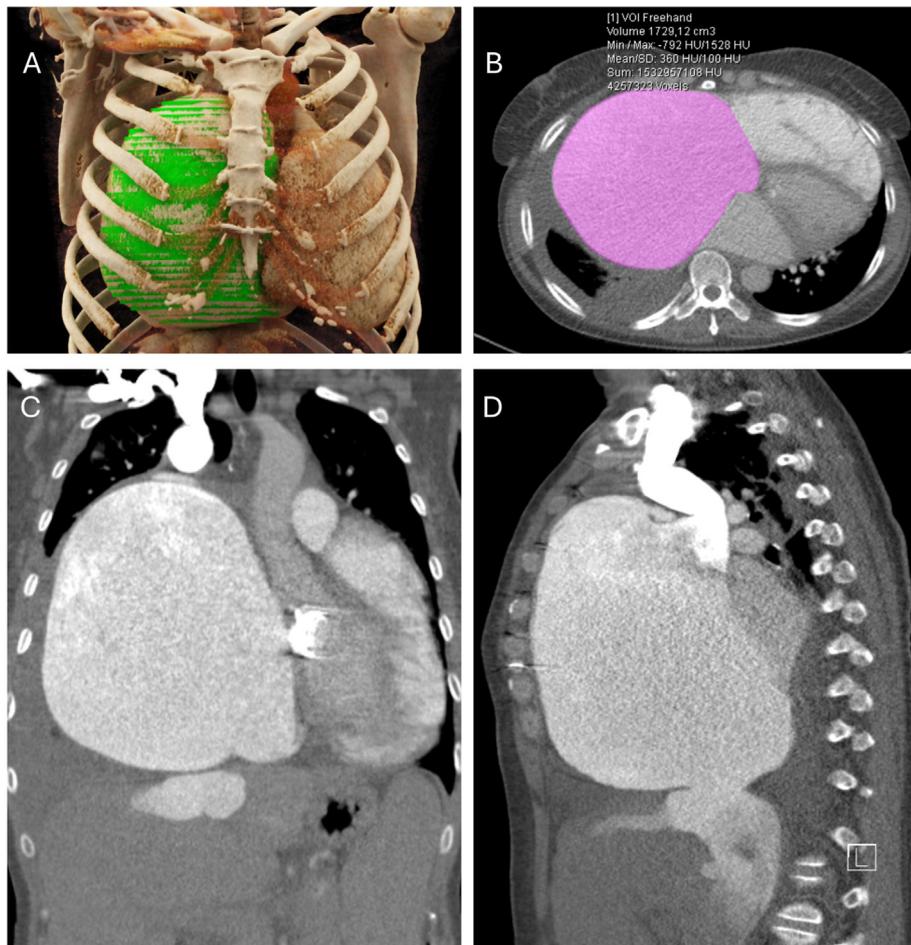


Figure 1. Contrast-enhanced thoracic CT of the 49-year-old woman: A) Photorealistic volume rendering technique with right atrium marked in light green, B) axial sectioning with volumetry of the right atrium (violet, app. 1.7 L), coronal (C) and sagittal (D) reformation with illustration of the extension of the heart in the thoracic cavity and compression of adjacent structures.

Central message

A massively dilated right atrium can additionally mechanically add to dyspnea and abdominal comfort in right heart failure.

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Informed consent statement

The patient signed an informed consent statement for the publication of this case report.

Declaration of competing interest

The authors declare no conflict of interest.