

A mobile cardiac myxoma

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History

A 74-year-old female patient, suffering from exertional chest tightness and shortness of breath for the past year, came to the hospital for a check up. Her symptoms could be relieved by rest, however, had worsened over the past two months. An echocardiography examination performed in the local hospital revealed an abnormal growth in the left atrium. She was referred to our hospital for treatment. A cardiac CT was requested for pre-operative evaluation.

Diagnosis

CT images revealed normal coronary arteries without plaques or stenoses (Fig. 1). A large, polypoid mass was seen in the left atrium, attached to the interatrial septum. The mass was smoothly demarcated and homogeneously hypodense, without enhancement or calcification. It prolapsed partially into the left ventricle through the mitral valve in the diastole and completely returned into the left atrium in the systole (Fig. 2 and Fig. 3). The dynamic movement and the stalk of the mass were better visualized when using multi-phase image reconstructions and the cine mode display. A mobile cardiac myxoma was suspected and was confirmed through pathology after the surgical resection. The patient recovered uneventfully.

Comments

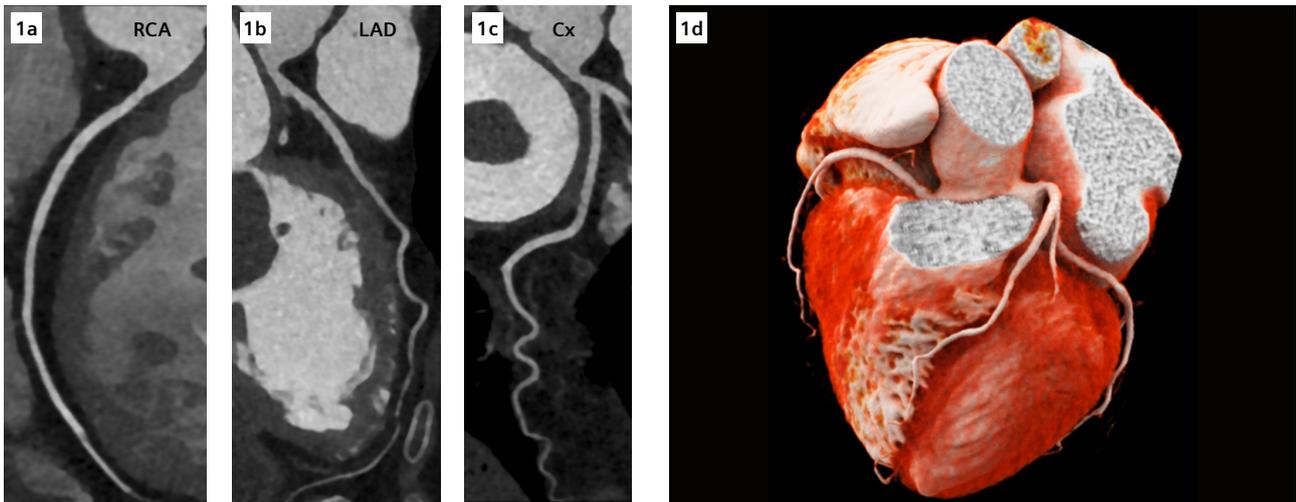
A cardiac myxoma (CM) is the most common benign primary tumor of

the heart. It typically manifests as a polypoid intracardiac mass, most often in the left atrium, attached to the interatrial septum. The attachment point can be pedunculated, and a certain degree of mobility can occur depending upon the length of the stalk. The symptoms of the CM are usually unspecific or are similar to those of coronary artery disease (CAD). Surgical removal is considered the optimal treatment and must be carefully planned, especially when CM and CAD co-exist, and a combined operative strategy is contemplated. Therefore, it is important to evaluate the cardiac chambers as well as the coronary arteries prior to surgery. In this case, a cardiac CT is performed with prospective ECG triggering using one bolus of contrast injection. Multiple phases are reconstructed using acquired data to demonstrate the dynamic movement and the stalk of the mass. The best systolic and diastolic phases are automatically identified by the CT system. This significantly improves our daily workflow, with a great impact upon time-saving. The achieved image quality is optimal for a comprehensive evaluation, which enables the physicians to reach the diagnosis of CM, as well as to rule out CAD. ●

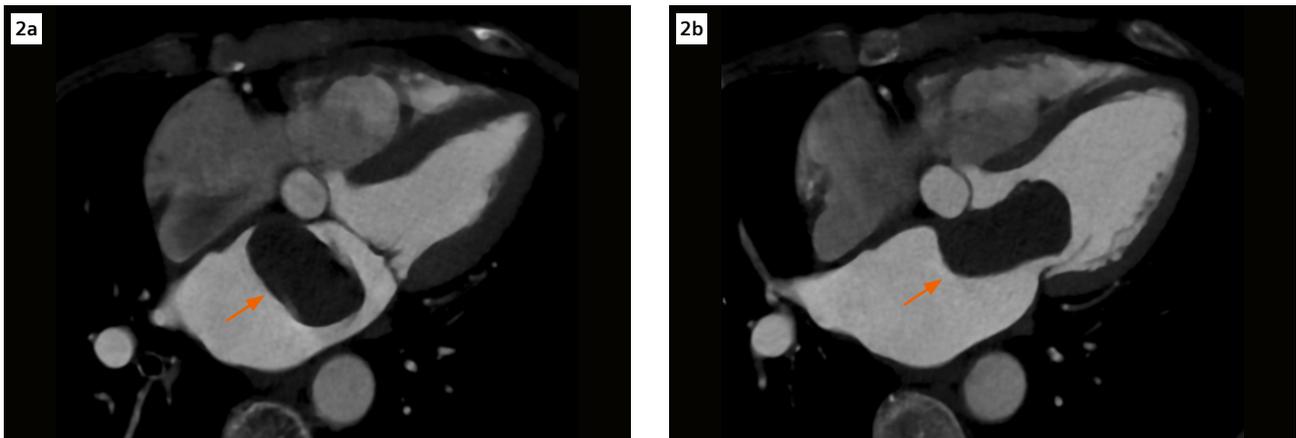
The statements by Siemens Healthineers' customers described herein are based on results that were achieved in the customer's unique setting. Because there is no "typical" hospital or laboratory and many variables exist (e.g., hospital size, samples mix, case mix, level of IT and/or automation adoption) there can be no guarantee that other customers will achieve the same results.

Examination Protocol

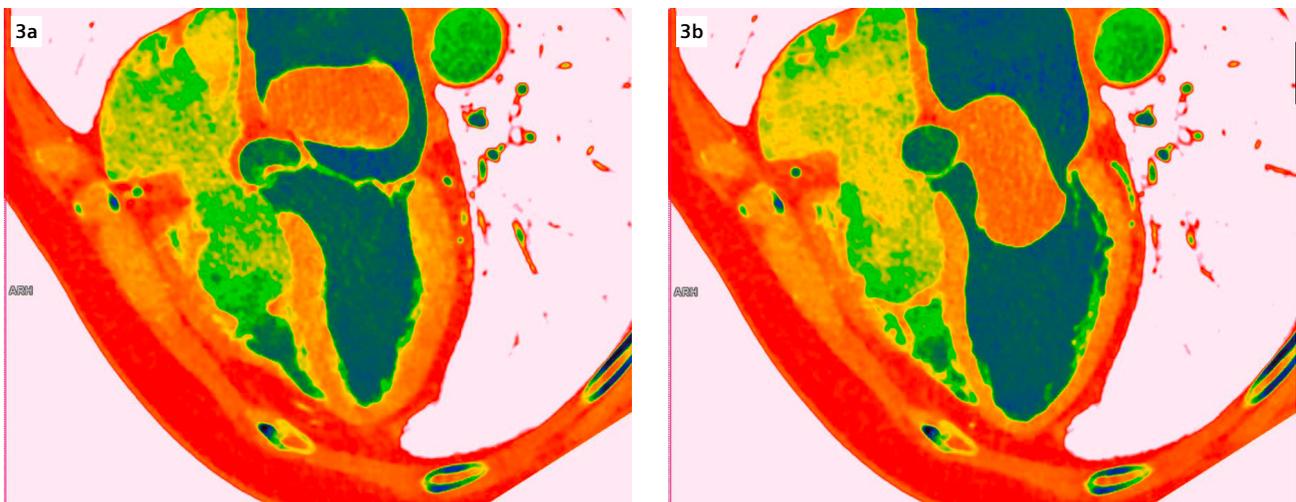
Scanner	SOMATOM Force
Scan area	Heart
Scan mode	Prospective ECG Triggered Sequential scan
Scan length	113 mm
Scan direction	Cranio-caudal
Scan time	3.5 s
Tube voltage	90 kV
Effective mAs	227 mAs
Dose modulation	CARE Dose4D
CTDI _{vol}	14.1 mGy
DLP	186.7 mGy*cm
Rotation time	0.25 s
Slice collimation	176 x 0.6 mm
Slice width	0.75 mm
Reconstruction increment	0.5 mm
Reconstruction kernel	Bv40
Heart rate	67 – 70 bpm
Contrast	320 mg/mL
Volume	60 mL + 40 mL saline
Flow rate	4.5 mL/s
Start delay	Bolus tracking with 100 HU at ascending aorta + 5 s



1 Curved MPR images (Figs. 1a-1c) and a cVRT image (Fig. 1d) reveal normal coronary arteries.



2 MPR (5 mm) images in long axis show a large, hypodense mass remaining in the left atrium in systole (Fig. 2a, arrow), and prolapsing through the mitral valve into the left ventricle in diastole (Fig. 2b, arrow).



3 Two images captured in a movie, showing the dynamic movement of the mass and the heart, demonstrate that the mass partially prolapses into the left ventricle in diastole (Fig. 3b) and returns into the left atrium completely in systole (Fig. 3a). The stalk is attached to the interatrial septum. The mitral valve opens and closes properly. The image window setting is chosen from the CT color LUT for better demonstration.