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Title	Volume-rendering and endocardial views of partially unroofed coronary sinus with 64-slice multidetector CT
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Title: Volume rendering and Endocaridal views of Partially Unroofed Coronary Sinus with
64-slice MDCT

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A 71-year-old woman presented with one year of moderate-effort dyspnea and a past history of brain infarction. Image quality on trans-thoracic echocardiography was suboptimal due to obesity. An ECG-gated 64-slice MDCT image showed a dilated proximal coronary sinus (CS); the distal CS was normal in caliber. The 3D volume rendering (VR) (Figure 1a) and multi-planner reconstruction (Figure 1b) images revealed a partial defect of the CS. The relationship between the mitral valve and the defect was clearly visualized with the endocardial view (Figure 1c). The diameter of the CS defect was 2.3 cm. The pulmonary-to-systemic blood flow ratio (Qp:Qs) was more than 3 by cardiac catheterization. The patient had a direct surgical closure of the defect.

Preoperative diagnosis of unroofed coronary sinus has been reported by catheterization, angiography (1), echocardiography, CT (2) and MRI (3, 4). We successfully diagnosed unroofed coronary sinus preoperatively by the 3D VR and endocardial views with 64-slice MDCT, and those clearly showed the defect of the roof of the CS and the relationship with the surrounding structure. The 3D VR view was helpful for visualizing the relationship between the right coronary artery and dilated CS. The endocardial view was helpful for surgical planning as it was similar to the surgeon's view and delineated the relationship between the CS defect and the mitral valve. In conclusion, MDCT is a good non-invasive tool for the evaluation of unroofed coronary sinus, and the reconstructed endocardial view is useful for preoperative

surgical planning.

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Figure Legends:

Figure 1a: MDCT 3D volume rendering (VR) image (the point-of-view is posterior to the patient)

The 3D VR image shows the dilated, partially unroofed CS and its relationship to the LA. The asterisk (*) indicates the unroofed portion of the CS. Note that the distal CS (white arrowheads) is normal in size.

Figure 1b: Multi-planar reconstructed image

It shows a virtual viewpoint (arrow) from the LA toward the coronary sinus defect (*) and left ventricle, from which the images in Figure 1c and 1d were observed.

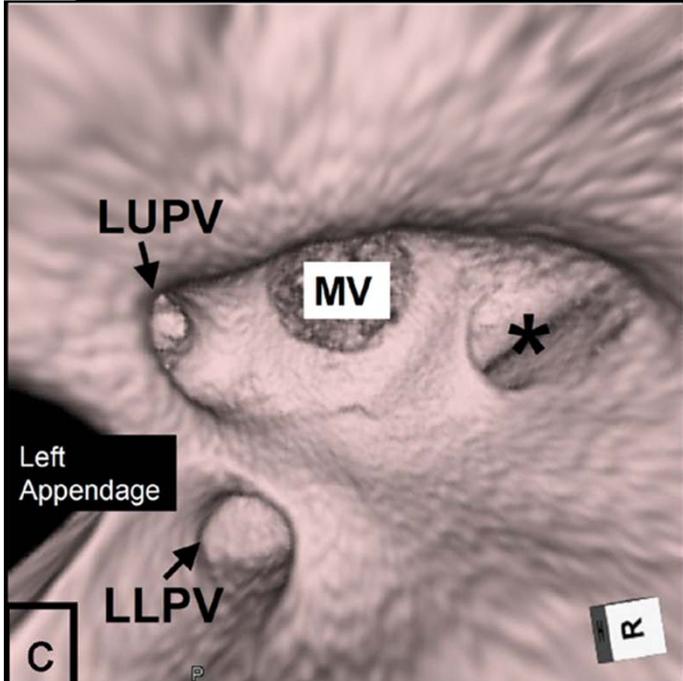
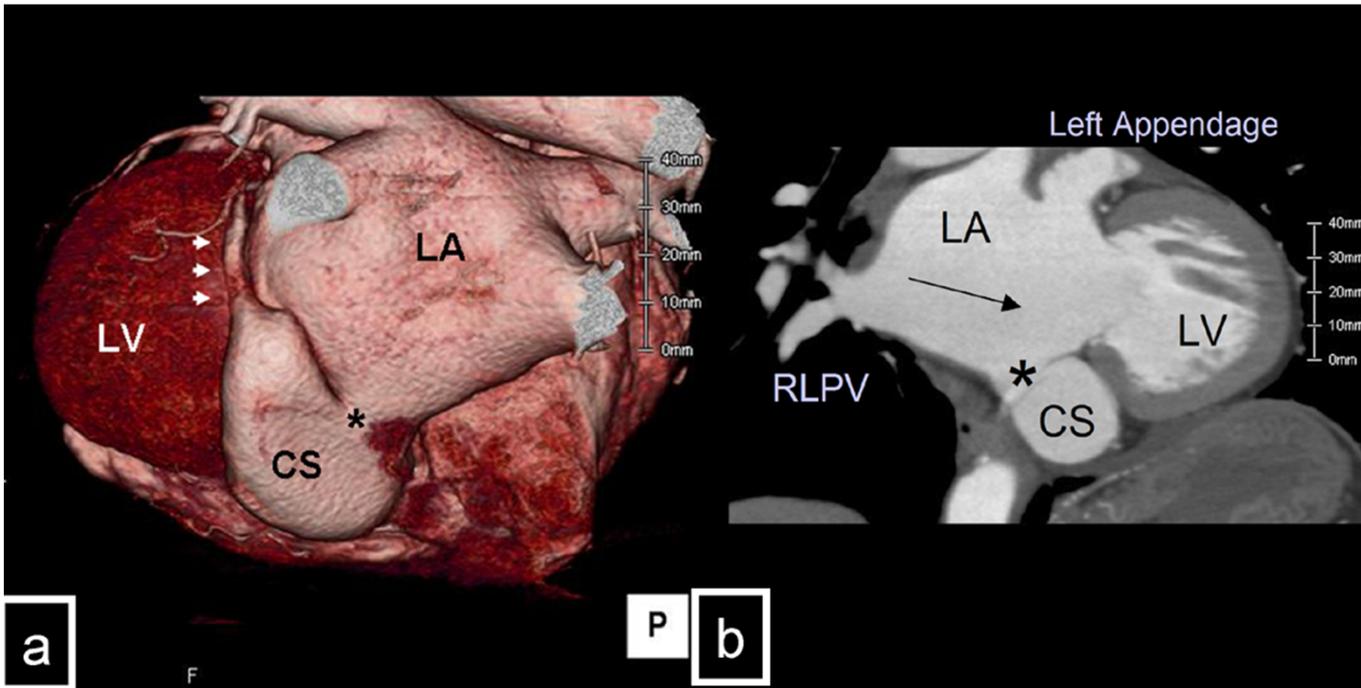
Figure 1c: 3D endocardial view image in the left atrium

Note the relationship between the MV and the defect of the CS roof (asterisk*).

Figure 1d: 3D endocardial cine image

The cine shows views from right upper side of the LA towards the defect of the CS.

CS: coronary sinus, LA: left atrium, LUPV: left upper pulmonary vein, LLPV: left lower pulmonary vein, MV: mitral valve, RLPV: right lower pulmonary vein



1a	1b
1c	