Echocardiographic imaging of saccular aneurysm in the left main coronary artery

A 59-year-old woman presented with a recent onset of dyspnea and chest pain. Past medical history and cardiovascular examination were completely normal. Electrocardiography demonstrated sinus rhythm with left bundle branch block pattern. Transthoracic echocardiography (TTE) revealed a slightly reduced ejection fraction with hypokinetic septal and anterior walls. Parasternal short-axis imaging displayed a small saccular echo-free space associated with the aorta, and no color flow turbulence was observed with color flow Doppler imaging (Fig. 1a). Subsequently, two-dimensional transesophageal echocardiography (2D-TEE) revealed a normal long-axis view and similar short-axis findings to transthoracic imaging. Real-time 3D-TEE (RT-3D-TEE) provided better imaging and indicated that the saccular body was a round-shaped small aneurysm that was relevant to the left main coronary artery (LMCA) take-off location (Fig. 1b; Video 1).

Aortography depicted a round-shaped saccular aneurysm, 8×9 mm in size, originating from the proximal LMCA that was approximately 2–3 mm next to the LMCA ostium (Fig. 2a; Video 2). Coronary angiography revealed an aneurysm associated with proximal LMCA (Fig. 2b; Video 3).

Although TTE can provide valuable information regarding the diagnosis of coronary aneurysm in pediatric patients with Kawasaki disease, its validity is limited in adults because of the declining image quality. Nevertheless, proximal segments of the coronary arteries can be assessed with TEE. RT-3-D-TEE can provide even better information regarding the location, size, shape, and relation to adjacent tissue in LMCA aneurysm, as in our case.

In this report, we presented an isolated saccular LMCA aneurysm diagnosed by echocardiography, which is rarely encountered in coronary angiography.

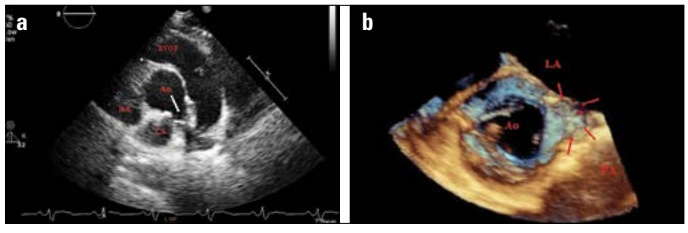

Figure 1. (a) 2D Transthoracic echocardiography parasternal short-axis image, from the slightly higher level of the aortic valve, displaying small saccular echo-free space (white arrows). (b) Real-time 3D transesophageal echocardiography showing small, round-shaped, proximal LMCA segment originated aneurysm (red arrows) in the diastolic short-axis image.

*represents. Ao- aorta; LA- left atrium; RA- right atrium; RV- right ventricle; LMCA- left main coronary artery; PA- pulmonary artery

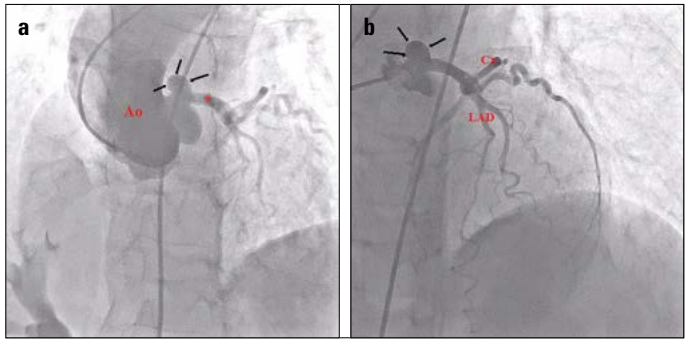

Figure 2. (a) A. Aortography showing a round-shaped, proximal LMCA-originated saccular aneurysm, 8×9 mm in size (Black arrows). (b) Coronary angiography showing proximal LMCA aneurysm (black arrows) and non-significant lesions in the coronary arteries.

*LMCA. Ao- aorta; Cx- circumflex artery; LAD- left anterior descending artery

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Video 1. Real-time 3D transesophageal echocardiography showing small, saccular, proximal LMCA aneurysm at the level of the sinotubular junction
Video 2. Aortography showing saccular aneurysm originating from the proximal LMCA
Video 3. Coronary angiography showing proximal LMCA aneurysm and normal coronary arteries

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