‘Rail track picture’: diagnosis of the protruding of left main coronary stent by transthoracic echocardiography especially with three-dimensional images

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An 81-year-old man with history of coronary artery disease involving left main coronary artery (LMCA) and triple vessels had undergone coronary artery bypass graft in October 2000. Recurrent angina occurred in March 2009, and reversible ischaemia over the lateral wall was noted by thallium-201 myocardial perfusion scan. Percutaneous coronary intervention performed and a bare metal stent (Liberte; 5.0 × 32 mm) deployed from an ostial LMCA to the proximal left circumflex artery without the guidance of intravascular ultrasound. During following coronary artery angiography, engagement of ostium of the LMCA was with some difficulty (Panel A).

Transthoracic echocardiography (TTE) performed and two-dimensional images revealed an 11 × 5 mm fixed and hyperechoic lesion located in the left coronary cusp (Panels B and C; see Supplementary data online, Movie S1) and protruding of LMCA stent into the aorta was highly suspected. Three-dimensional (3D) echocardiography (Panel D) clearly illustrated the structure of protruding stent-like ‘rail track’ picture. Later, lower-dose computed tomography of chest confirmed the diagnosis of protruding of LMCA stent (Panel E).

The complication of LM stent protruding into the aorta could happen due to particular mechanisms, such as longitudinal stent deformation, anomalous origin of LM ostium, or after chest contusion events. In this case, TTE with 3D image provides an easy and non-invasive method to evaluate possible protrusion of LMCA ostial stent. As to our knowledge, one report had presented right coronary artery ostial stent protrusion, which was detected by TTE. We suggested that TTE with 3D image is feasible (i) in indenting the stent protruding into aorta (ii) and in the detection of possible thromboembolic events in patients receiving aorto-ostial coronary stent.

(Conv) A) Dry cine view demonstrated that guiding catheter was difficult to engage the protruding LMCA stent (black arrow). (Panels B and C) TTE revealed the protruding LMCA stent (white arrow) located in the left coronary cusp from parasternal long-axis view (B) and parasternal short-axis view (C). (Panel D) The central hollow structure of the protruding LMCA stent (white arrow) like ‘rail track’ and was clearly illustrated by 3D echocardiography. (Panel E) Lower-dose computed tomography of chest revealed the left main coronary stent protruding into the aorta.

Conflict of interest: none declared.

Supplementary data are available at European Heart Journal – Cardiovascular Imaging online.

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