A 81-year-old man was referred for 3D transesophageal echocardiography (3DTEE) for evaluation of aortic stenosis possibly because of a bicuspid aortic valve. On the 2D short-axis view of the aortic valve, a mobile calcific mass was incidentally found near the orifice of the left main coronary artery. Cropped live 3D mode (X7-2t, Philips Medical Systems, Andover, MA, USA) of the aortic valve provided more detailed and comprehensive information regarding the temporal relationship between this mobile mass and the left main coronary orifice. The mass was attached to the left side of the anterior leaflet of the bicuspid aortic valve, and moved back and forth, intermittently protruding into the left main coronary orifice (Figure 1, Movies 1, 2). Coronary angiography was cancelled, and alternative cardiac multidetector computed tomography (MDCT) revealed no coronary artery stenosis. Direct inspection of the aortic valve during cardiac surgery verified the partial detachment of the calcific nodule on the valve leaflets, confirming the accuracy of the preoperative 3D images (Figure 2). The patient underwent successful aortic valve replacement without any perioperative complications.

Although MDCT is becoming a useful non-invasive modality for detecting coronary artery stenosis, invasive coronary angiography is still required before surgical aortic valve procedures for severe aortic stenosis, especially in elderly patients. In addition to detecting mobile atheroma in the

**Figure 1.** Serial cropped short-axis (A) and long-axis (B) live 3D images of the stenotic bicuspid aortic valve. The temporal and spatial relationships between the calcific mass (red arrow) and the left coronary ostium (white arrow) during cardiac cycle are easily appreciated. LAD, left anterior descending coronary artery; LCX, left circumflex coronary artery; LMCA, left main coronary artery.
aortic arch and/or descending thoracic aorta, real-time 3DTEE provides detailed anatomical information regarding the orifices of the coronary arteries in 3D space, thus eliminating the potentially catastrophic complications that can occur during invasive coronary angiography. Although real-time 3DTEE has been reported as potentially useful for the evaluation of mitral valve and interatrial septal pathologies, comprehensive 3DTEE assessment of the aortic valve and its surrounding structures can yield incremental diagnostic information that assists with preoperative decision making.

Disclosures
None.

References

Supplementary files
Movie 1. Cropped 3D short-axis image of the aortic valve. Anterior-posterior type of bicuspid aortic valve is verified, and the spatial and temporal relationships between the calcific mass and the coronary orifice are more clearly depicted.
Movie 2. Cropped 3D enface view of the orifice of the left main coronary artery.
Please find supplementary file(s): http://dx.doi.org/10.1253/circj.CJ-09-0974

Figure 2. Intraoperative photograph confirming mobile mass (yellow arrows) on the bicuspid aortic valve.