Delineation of a paravalvular leak origin between a rigid mitral ring and supra-annular implanted mechanical mitral prosthetic valve

Abstract
Paravalvular leakage is not a rare condition among patients with mitral prostheses. Two-dimensional echocardiographic approaches are not sufficient to determine the origin of paravalvular leak that occurs after prosthetic mitral valve replacement. Real-time three-dimensional transesophageal echocardiography provides detailed structural identification of paravalvular leak origin and defect morphology compared to two-dimensional transesophageal echocardiography. Here we present a patient with paravalvular mitral regurgitation from a slit like defect between the mitral anular ring and the prosthetic valve delineated with the utility of 3D full volume and 3D color flow imaging modalities.

Keywords: mitral ring, paravalvular leak, transesophageal, echocardiography

Abbreviations: TEE, Transesophageal echocardiography; 2D, two dimensional; 3D, 3 dimensional

Case report
A 65-year-old woman suffering from severe mitral valve regurgitation underwent mitral ring annuloplasty (31 no Saint Jude Medical Rigid Ring). After weaning from cardiopulmonary bypass pump, intraoperative transesophageal echocardiography (TEE) was performed this revealed withstanding severe mitral regurgitation. Therefore a supraannular 28 no bileaflet ATS-AP mechanical mitral valve was implanted over the mitral ring and intraoperative TEE showed normally functioning mitral prosthesis. The surgery was completed without complication. The patient experienced an uneventful postoperative period but was readmitted to hospital one month after discharge. Transthoracic echocardiogram did not show any pericardial effusion but a moderate mitral regurgitation jet detected by color Doppler imaging (Figure 1A). TEE was performed to depict the origin of the regurgitant jet. Two dimensional (2D) TEE showed a moderate paravalvular leakage with the help of color Doppler imaging (Figure 1B). Subsequently, real-time 3 dimensional (3D) TEE revealed a regurgitates jet arising from a slit like defect between the mitral anular ring and the prosthetic valve with the utility of 3D full-volume and 3D color flow imaging modalities (Figures 2A & 2B).

Figure 1 Transthoracic echocardiogram on apical five chamber view (A) and two dimensional transesophageal echocardiogram (B) showing moderate paravalvular mitral regurgitation by color Doppler imaging.

Paravalvular leakage is not a rare condition among patients with mitral prostheses but a leakage between a mitral ring and mechanical prosthetic valve has not been reported so far. Real-time 3D TEE provides detailed structural identification of paravalvular leak origin and defect morphology compared to 2D TEE.

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None.

Conflicts of interest
Authors declare that there are no conflicts of interest.

References
