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Detection of isolated clefts of both anterior and posterior mitral leaflets by live/real time three-dimensional transesophageal echocardiography

Authors:
B Uygur¹, M Erturk¹, Mehmet Akif Ersoy Thoracic and Cardiovascular Surgery Training and Research Hospital, Cardiology - Istanbul - Turkey,

Topic(s):
3D Echocardiography

Citation:
European Heart Journal - Cardiovascular Imaging (2019) 20 (Supplement 1), i1161

A 67 year-old male patient with known history of congestive heart failure and functional mitral regurgitation (MR) was admitted to our hospital with New York Heart Association (NYHA) class 3 symptoms. He was on heart failure medication. His physical examination revealed 5/6 systolic murmur and electrocardiogram was normal sinus rhythm with heart rate of 78 bpm. Two-dimensional (2D) transthoracic echocardiography showed dilated LV cavity with EF 35% and moderate to severe MR. Patient was referred to transesophageal echocardiography (TEE) laboratory to examine the MR. 2D TEE revealed moderate to severe MR with normal mitral valve structure (Figure 1-A-B). But after performing three-dimensional (3D) TEE, isolated clefts of both anterior and posterior mitral leaflets were seen (Figure 1-C). The organic reason for MR was detected and the treatment strategy was changed to surgical repair rather than medical follow-up. Isolated cleft mitral valve without any other feature of atrioventricular septal defect is not a common congenital cause of MR. 3D TEE has an incremental value over 2D TEE in the assessment of isolated cleft mitral valve anatomy by defining the exact size and position from the enface view.

Figure 1-A. Two-dimensional transesophageal echocardiography. Four-chamber view. Normal mitral valve (MV) structure is seen. 1-B. Two-dimensional transesophageal echocardiography. Long axis view with color doppler. Moderate to severe mitral regurgitation is seen. 1-C. Live/real time three-dimensional transesophageal echocardiography. Aortic valve (AV) and MV are seen. Arrow shows cleft of anterior mitral leaflet, arrowhead shows cleft of posterior mitral leaflet. Aorta (AO), left atrium (LA), left atrial appendage (LAA), left ventricle (LV), right atrium (RA), right ventricle (RV), tricuspid valve (TV) are also seen.
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