Perforated Anterior Mitral Leaflet: Beyond 2-Dimensional Imaging

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A 52 year old male with past history of native mitral valve S.aureus endocarditis was referred with the diagnosis of ‘severe mitral regurgitation (MR)’. Transthoracic echo (TTE) showed severe MR with a perforation in anterior mitral leaflet (Figure 1). For better imaging, transesophageal echo was done using a fully sampled matrix array transducer( iE 33 ultrasound, Philips Medical Systems, USA). Three-dimensional imaging was performed and the pyramidal data sets were cropped along designated x, y and z axes or using a manually positioned cropping plane of choice.

The 3D images clearly showed the en-face view of the mitral valve with the surrounding anatomy. The perforation in anterior mitral leaflet (AML) was clearly documented with an estimated area of 0.8 cm$^2$. A colour 3D reconstruction confirmed that the MR jet originated at the perforation site (Figures 2 and 3).

The ability of TEE to diagnose mitral leaflet perforation is much superior to TTE (sensitivity 95%, specificity 98%). The addition of 3D imaging to TEE has provided us with the en-face view of the mitral valve. Moreover Q lab quantification software can estimate the size of the perforation and provide a surgeon with relevant details to plan valve repair. Excellent surgical results have been reported after 3D TEE in such patients.

We wish to highlight the role of 3D TEE in such context as it can be performed without any added risk to patients.

References