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Letter to the Editor

Is Transesophageal Echocardiography alone sufficient for detecting prosthetic mitral valve vegetation?

Infective endocarditis (IE) is a lethal disease with high mortality and morbidity.[1] Therefore early diagnosis and treatment is highly recommended,[2] and echocardiography has the main role in diagnosis of IE,[2] Prosthetic valve endocarditis is more aggressive form and affect the patient survival significantly. It is seen in 1–6% of patients with prosthetic valve, and includes 10–30% of all IE cases.[2]

Both transthoracic (TTE) and transesophageal echocardiography (TEE) are imaging modalities of choice for diagnosis, management and follow up of IE.[1] TTE should be performed as soon as possible in all patients with clinical evidence of IE, and TEE should also done for better and precise diagnosis in concomitant with evaluation of complications; really TEE is recommended when the TTE is suspicious of IE or for further evaluation of high risk conditions such as the presence of prosthetic valves, native valves' regurgitant or stenotic lesions and in the presence of other intra- cardiac devices.[1]

Repeating TTE and or TEE examination within 5–7 days in case of initially negative echo exam in the presence of high clinical suspicion is recommended. Vegetation, abscess or pseudoaneurysm and a new dehiscence of prosthetic valve are findings in echocardiography which are major criteria for IE.[1] Overall, TTE has lower sensitivity for detection of vegetation in compared with TEE (40–60% vs. 94–100%).[3]

False negative results are usually due to small or non-oscillating vegetations, vegetations in atypical position, vegetations which have embolized and also cause of acoustic shadowing of the prosthetic valve .[4,2]

In some circumstances TEE is initially suggested and performed such as in the presence of prosthetic valve, Poor TTE image quality, calcified aortic valve and myxomatous mitral valve due to added value of TEE in compared with TTE[3]; for example Biswas A, et al., studied 27 high risk patients for IE that underwent TTE and TEE examinations and only 29.6% of patients was found to have vegetation on TTE; This study recommend TEE as the initial diagnostic tool for high risk patients without need for TTE[3] They saw risk benefit ratio was in favor of doing TEE without preceding TTE in high risk individuals[3]; however, We had an experience of IE in prosthetic mitral valve with a moderate size mobile vegetation on ventricular side of prosthesis which was not seen with different views of TEE due to acoustic shadowing but was visualized during TTE obviously.

Really, in Acoustic shadowing phenomena one strong reflector, reflects the ultrasound beam so structures in far field of the window fail to be visualized, it is common with prosthetic valves, in mitral prosthetic valve acoustic shadowing obscures the structures in ventricular surface in TEE and in atrial surface in TTE. One of the ways for eliminating this artifact is to switch the image window to another plane; In mitral prosthesis,switching from mid esophageal views to trans gastric 2-chamber or trans gastric long-axis views or use of TTE (such as our case) for further evaluation of ventricular surface of prosthesis helps to detect structures such as vegetation[5].

Our patient underwent surgery and direct visualization confirmed the mass which was vegetation in pathologic exam; So according to our experience, we believe in, the diagnostic value of combined TTE and TEE not TEE alone in the high risk patients of IE.

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