Infective endocarditis in mitral mechanical prosthesis: the role of three-dimensional transoesophageal echocardiography

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Echocardiography plays an important role in diagnosis and management of patients with infective endocarditis. We reported an image case of a 64-year-old woman who was admitted because of suspected infective endocarditis with fever, dyspnoea, and soporous state. Ten years previously, she underwent surgical aortic and mitral valve replacement with two mechanical prostheses (St Jude Regent 19 and St Jude 29, respectively). Blood cultures were positive to Staphylococcus aureus.

Despite the prominent acoustic shadowing that accompanies mechanical prostheses, delineation of normal prosthetic valve function is usually possible with transthoracic echocardiography (TTE), with careful Doppler examination. A normal transprosthetic flow velocity and pressure gradient are usually sufficient to exclude a stenotic valve, but the prosthetic material may limit transthoracic visualization of prosthetic leaflets, vegetations, and thrombi. As a result, transoesophageal echocardiography (TOE) is the gold standard when the TTE is technically inadequate and should always be performed if endocarditis is suspected. This approach allows us to detect directly the mass adherent on the prosthetic valve without interferences of the acoustic shadowing. Nevertheless sometimes, especially when giant masses are present, it is difficult to define the anatomic relationship between the vegetation, the prosthesis, and adjacent intracardiac structures. Three-dimensional (3D) TEE is able to define more accurately the intracardiac anatomy, morphology of the mass, and residual effective mitral valve orifice, just in one echocardiographic view.

These TEE 2D and 3D images demonstrate the large infective obstructive mass on the atrial aspect of the mitral mechanical bileaflet prosthesis, attached to the prosthesis ring and double vegetation adherent to the leaflets (the asterisk represents the larger part of the mass, the arrow indicates the smaller medial portion of the vegetation). These findings were confirmed intraoperatively.