

Transvalvular leakage after the implantation of stented bovine pericardial valves is not only central

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To the editor: It is well known that mild central transvalvular leakage is usually seen after the implantation of a stented bovine pericardial valve [1,2]. However, noncentral regurgitation has not been reported, and the permissible regurgitation volume and the outcome in the case reported here were not clear. We observed noncentral leakage after the implantation of a stented bovine pericardial valve in a patient who was followed up until 2 weeks after surgery. The patient was a man in his seventies who had suffered from aortic insufficiency. He underwent aortic valve replacement using a Carpentier-Edwards PERIMOUNT Aortic Heart Valve (Edwards Lifesciences, Irvine, CA, USA). The transvalvular leakage was not central but diagonal, and a regurgitation jet was seen toward the anterior leaflet of the mitral valve (Fig. 1). LIVE xPlane using iE33 (Philips Medical Systems, Bothell, WA, USA) revealed that the regurgitation had originated in three coaptation zones. LIVE xPlane provides two-dimensional

(2D) images by volume raster scanning using a matrix array transducer, as in 3D-transesophageal echocardiography (TEE) and enables orthogonal sections to be displayed at the same time. Therefore, it enables the 3D structure to be easily understood and has the advantage of simplicity using the same



Fig. 1. Stented bovine pericardial valve, aortic position. Color Doppler flow transesophageal echocardiography midesophageal aortic valve long-axis view at a multiplane angle of 132° shows regurgitant jets. The regurgitant jets did not advance at the center of the left ventricular outflow tract (LVOT), but were oblique in the LVOT and were seen toward the anterior leaflet of the mitral valve

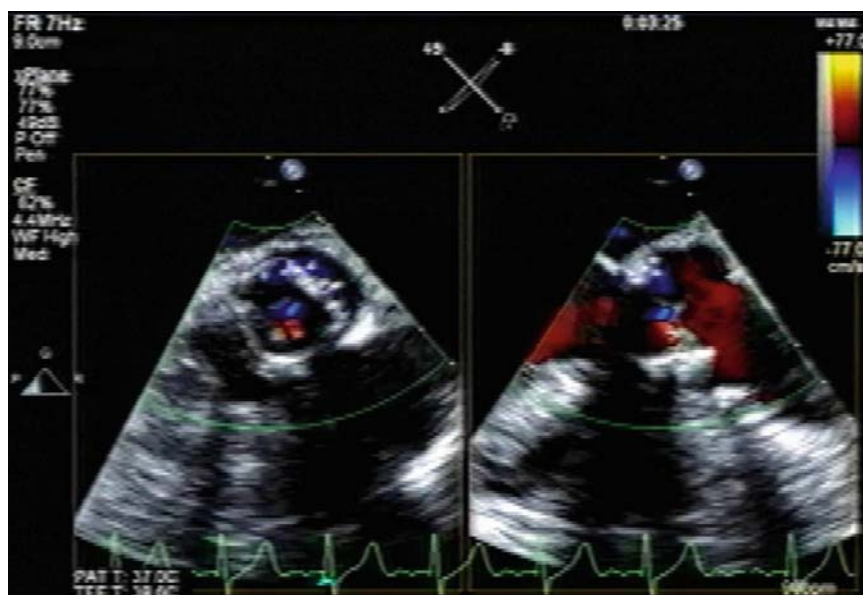


Fig. 2. LIVE xPlane, the technology of which made it possible to display orthogonal sections at the same time, shows two regurgitation jets. Transvalvular leakage was shown as two regurgitation jets. One of the regurgitation jets, indicated in blue, arises from the coaptation zone between the noncoronary and left coronary cusps. Another regurgitation jet, indicated in red, arises from the commissure between the left and right coronary cusps. Two of the three regurgitation jets are shown; the other regurgitation jet (arising from the commissure between the right coronary and noncoronary cusps) is not shown in this view. *Left*, midesophageal aortic valve short-axis view at a multiplane angle of 45°. *Right*, midesophageal aortic valve long-axis view at a multiplane angle of 135°

technology as that for 3D-TEE. Each regurgitation jet arose from each entire coaptation zone but mainly from each commissure. Two of the three regurgitation jets are shown in one view in Fig. 2. Although the imaging quality was not good, transthoracic echocardiography 2 weeks after the surgery showed two trivial-to-mild regurgitation jets originating near the annulus and directed towards the center. The regurgitation jets did not cause clinical symptoms and did not require treatment.

Transvalvular leakage after the implantation of stented bovine pericardial valves is not only central. LIVE xPlane facilitates diagnosis of the origin of regurgitation after valve implantation in the aortic portion.

References

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Received: December 6, 2008 / Accepted: July 10, 2009