Figure 1. A-D. 2D TTE short-axis view revealed a peak pressure gradient over the right ventricular outflow tract of 30 mm Hg (Fig. 1A). 2D TEE short-axis view demonstrated bicuspid pulmonary valve (Fig. 1B and Video 1A, arrow). 3D TEE full-volume acquisition also showed bicuspid pulmonary valve (Fig. 1C and Video 1B, arrow). Transverse view of colored 3D volume-rendered CT angiography also demonstrated bicuspid pulmonary valve (Fig. 1D, arrow)

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Multimodality imaging of isolated bicuspid pulmonary valve leading to pulmonary stenosis 🎬

Isolated bicuspid pulmonary valve is a rare arterial valve anomaly with very few reports in the literature. It is usually in association with other congenital cardiac lesions. However, the true incidence of bicuspid pulmonary valve could be underestimated because of the difficulty in imaging pulmonary valve morphology with conventional two-dimensional transthoracic echocardiography.

A 21-year-old man was admitted to our outpatient clinic for routine evaluation. Pansystolic murmur was heard on the left second intercostal space. The electrocardiogram showed normal sinus rhythm. The two-dimensional transthoracic echocardiography short-axis view revealed a peak pressure gradient over the right ventricular outflow tract of 30 mm Hg (Fig. 1A). The two-dimensional transesophageal echocardiography short-axis view demonstrated a bicuspid pulmonary valve (Fig. 1B and Video 1A, arrow). Three-dimensional transesophageal echocardiography full-volume acquisition also showed a bicuspid pulmonary valve (Fig. 1C and Video 1B, arrow). To clarify this pathology, we performed computed tomography (CT). The transverse view of colored three-dimensional volume-rendered CT angiography images also demonstrated a bicuspid pulmonary valve (Fig. 1D, arrow). We report here a case of isolated bicuspid pulmonary valve leading to pulmonary stenosis. There is difficulty in imaging pulmonary valve morphology. For this reason, the full spectrum of non-invasive cardiac imaging modalities should be performed in the diagnosis of bicuspid pulmonary valve. Multimodality imaging can help to diagnose this condition better.

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