

THREE-DIMENSIONAL ECHOCARDIOGRAPHIC VIEWS OF BICUSPID PULMONIC VALVE

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A 69-year-old woman with known hypertension and atrial septal defect (ASD) presented with dyspnea on exertion and generalized edema. A grade 3/6 systolic murmur was heard at the left sternal border. Electrocardiography showed complete right bundle branch block and a chest radiography showed progressive cardiomegaly and pulmonary edema. Two-dimensional transthoracic echocardiography (TTE) showed a secundum ASD (2.4 × 1.7 cm sized) with left to right shunt and enlarged right heart (Fig. 1A). Main pulmonary artery was markedly dilated up to 5 cm (Fig. 1B) but the pulmonic valve was not well visualized. Therefore, we performed 3-dimensional transesophageal echocardiography (TEE) and confirmed the bicuspid pulmonic valve (BPV) with mild pulmonic valve regurgitation (Fig. 2, Supplementary movie 1). Cardiac catheter-

ization derived pulmonary to systemic blood flow ratio (Q_p/Q_s) was 2.45 and mean pulmonary arterial pressure was 25 mmHg. As the superior rim of ASD was too short and not suitable for transcatheter closure, she underwent surgical closure of the large secundum ASD with an autopericardial patch.

BPV is a very rare congenital abnormality usually associated with other congenital heart diseases such as tetralogy of Fallot, pulmonary stenosis, and transposition of the great vessels.¹⁾ Interestingly, this case is the BPV accompanied by ASD. Generally, it's difficult or impossible to observe pulmonic valve directly in 2-dimensional TTE.²⁾ In this case, we confirmed the BPV using 3-dimensional TEE. Therefore, 3-dimensional TEE is the simple and informative tool for evaluation of pulmonic valve morphology and function.

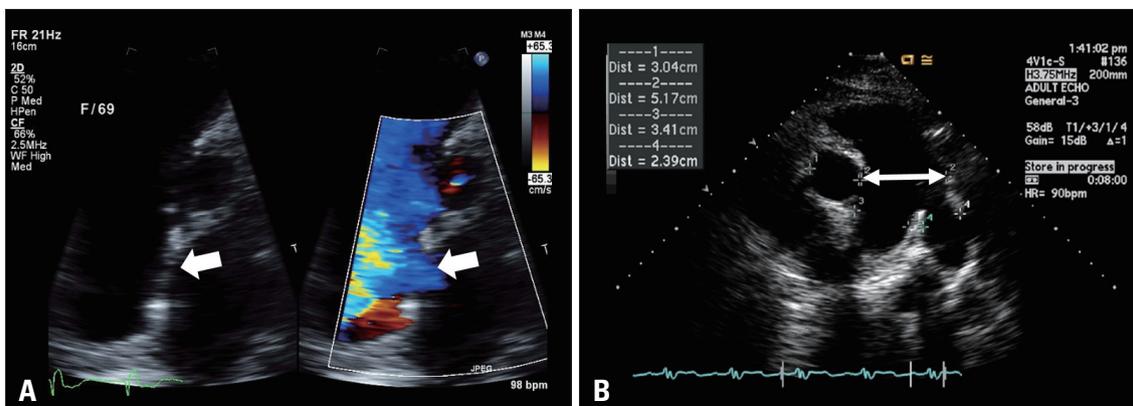


Fig. 1. A: Left: Secundum atrial septal defect in 2-dimensional transthoracic echocardiography (white arrow). Right: Color Doppler flow from left to right atrium (white arrow). B: Dilated main pulmonary artery (white arrow).

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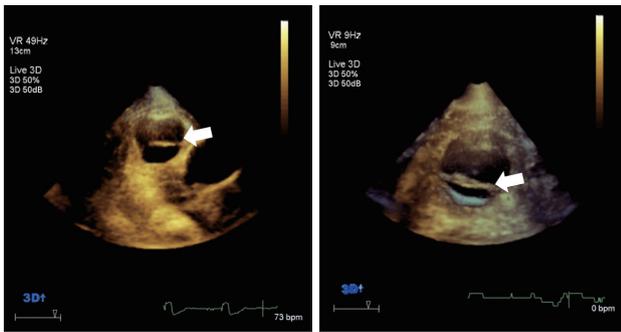


Fig. 2. Left: Bicuspid pulmonic valve (BPV) in 3-dimensional transesophageal echocardiography (white arrow). Right: Magnified view of BPV (white arrow).

SUPPLEMENTARY MOVIE LEGEND

Movie 1. Bicuspid pulmonic valve in 3-dimensional transesophageal echocardiography.

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