

# Severe Aortic Insufficiency in a Patient with a Functionally Bicuspid Quadricuspid Aortic Valve

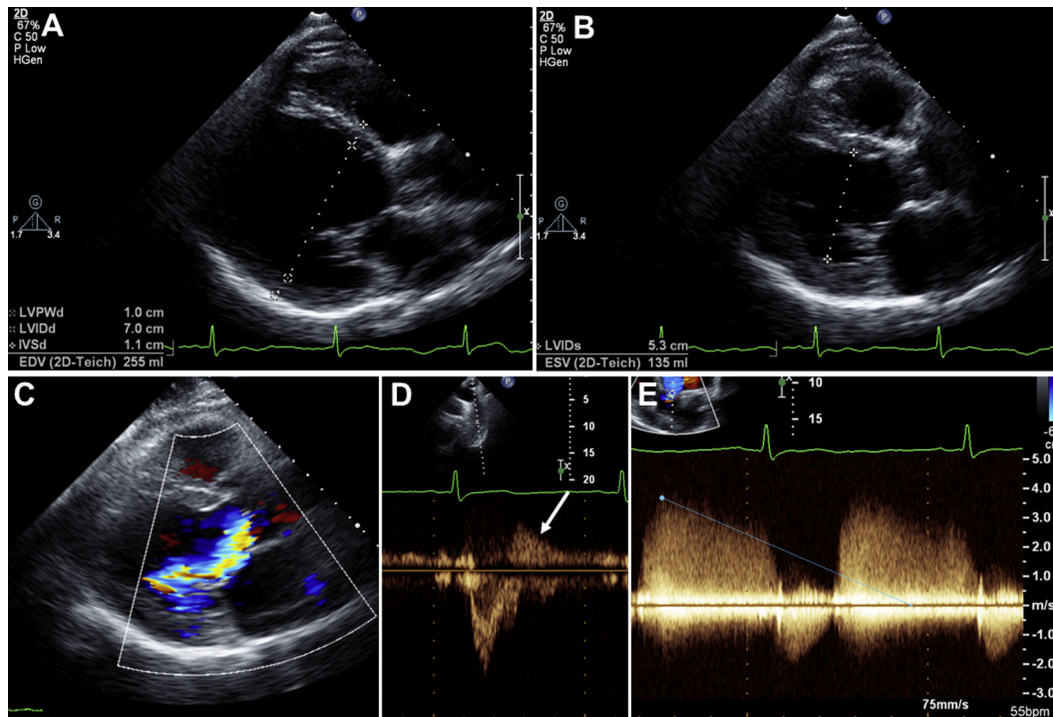


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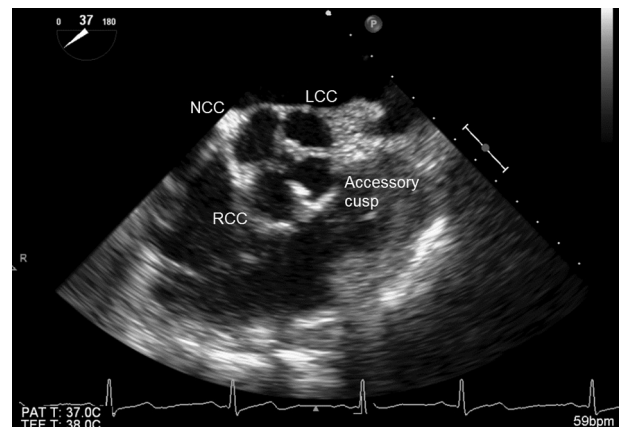
## INTRODUCTION

The most common congenital abnormality of the aortic valve is a bicuspid valve. Less common abnormalities include unicuspid and quadricuspid valves. The latter is a rare finding that is often associated

with aortic regurgitation. Congenital aortic valve abnormalities such as this may be missed on standard transthoracic echocardiography (TTE). Advanced imaging modalities, including transesophageal echocardiography (TEE) and magnetic resonance imaging (MRI), are useful in providing detailed anatomical assessment of valve morphology.



**Figure 1** Two-dimensional TTE images of the left ventricle from the parasternal long-axis view in diastole (A) and systole (B) showing severe left ventricular dilation. (C) Color Doppler imaging showing moderate-to-severe eccentric aortic regurgitation. (D, arrow) Pulsed-wave Doppler imaging of the descending thoracic aorta demonstrating diastolic flow reversal. (E) Continuous-wave Doppler of aortic regurgitation. The measured pressure half-time was 400 msec.



**Figure 2** TEE image of the aortic valve in short-axis view demonstrating four cusps. LCC, left coronary cusp; NCC, noncoronary cusp; RCC, right coronary cusp.

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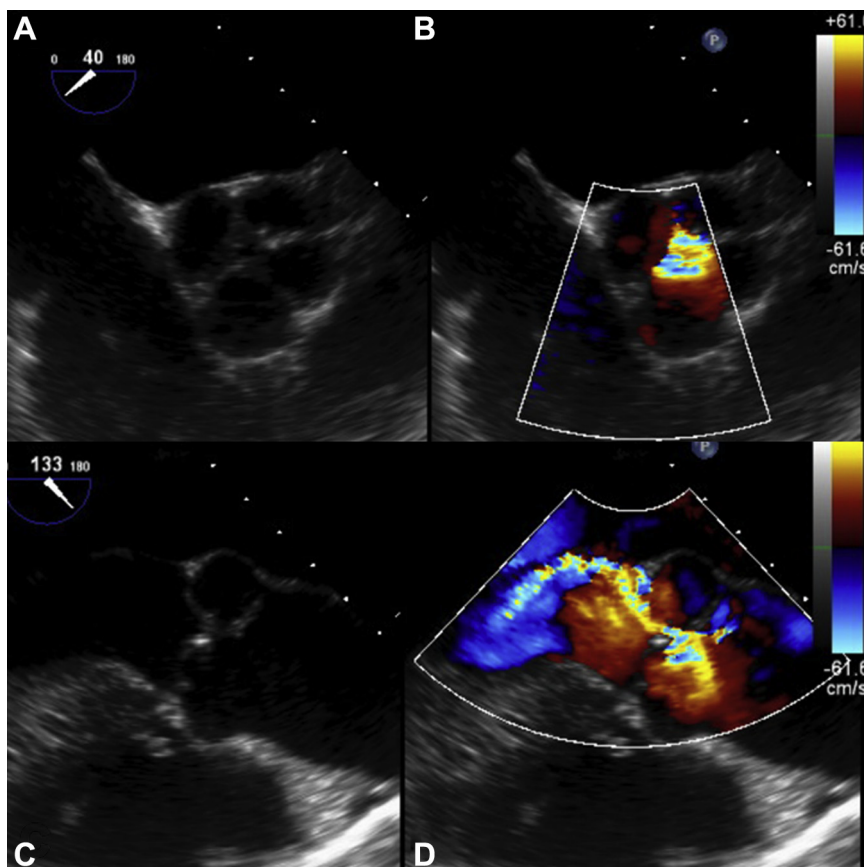
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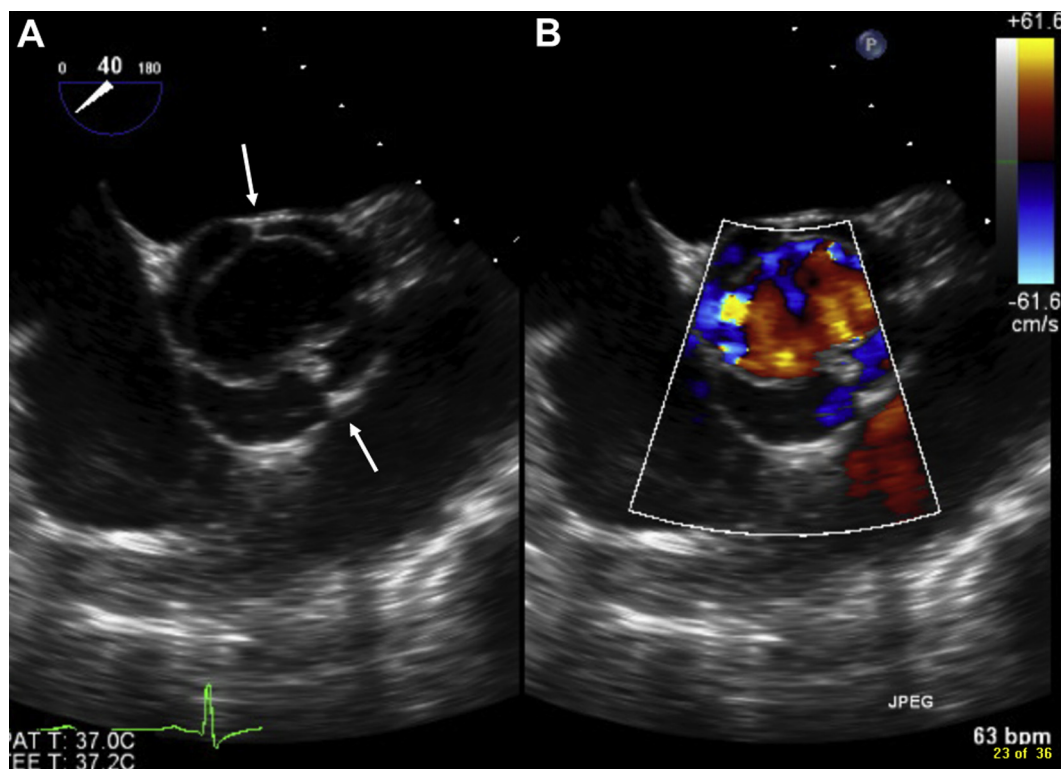
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**Figure 3** TEE images of the QAV in short- (A-B) and long-axis views (C-D) with and without color Doppler demonstrating severe eccentric aortic regurgitation.



**Figure 4** (A-B) TEE images of the QAV in short-axis view during systole demonstrating fusion of the right and noncoronary cusps and fusion of the left and accessory coronary cusps (arrows).

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