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Quadricuspid Aortic Valve and Anomalous Aortic Origin of the Right Coronary Artery

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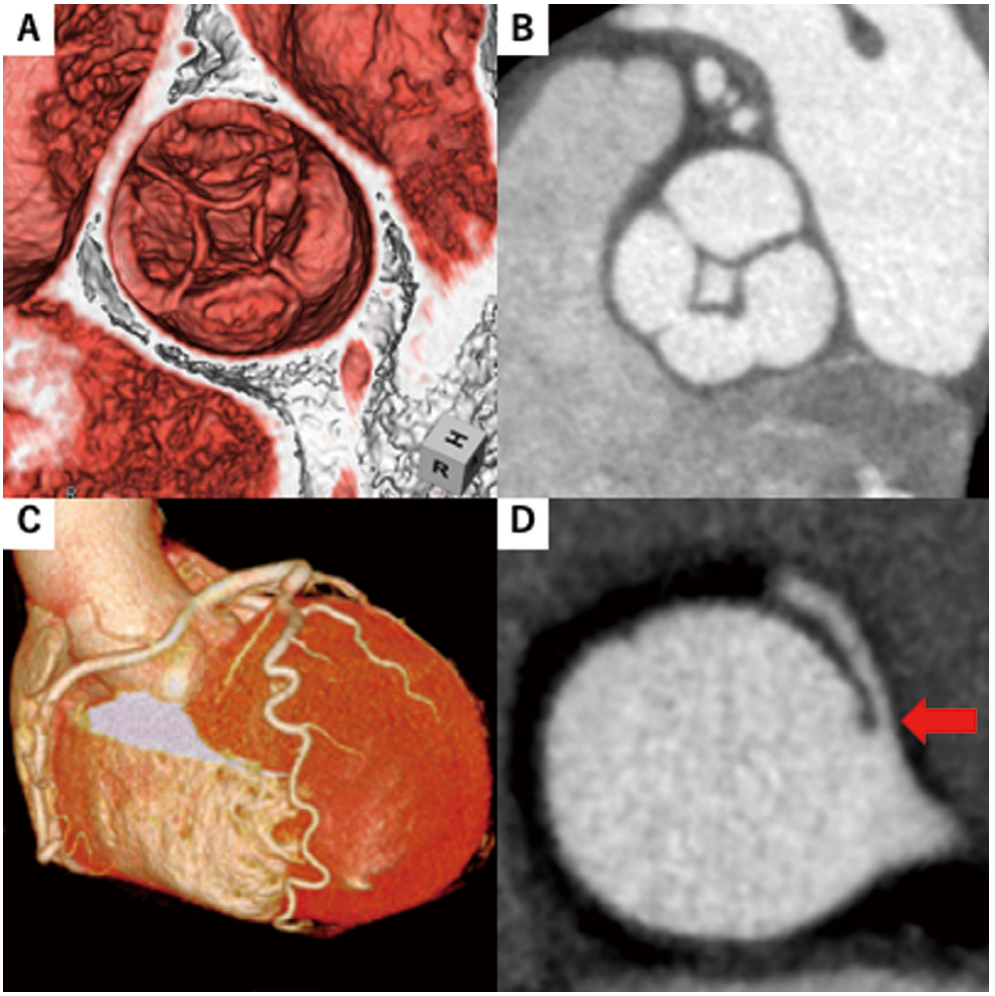

Figure. (**A**) Electrocardiogram-gated 3-dimensional computed tomography and (**B**) multiplanar reconstruction revealed a quadricuspid aortic valve. (**C**) The right coronary artery originated from the left coronary cusp and ran between the aorta and the pulmonary artery. (**D**) The intramural segment (arrow) showed 25% stenosis.

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Quadricuspid aortic valve (QAV) is rare, with an incidence of 0.033%, as reported in a study on 6,000 autopsies.[1] It is rarer for QAV to occur in combination with anomalous aortic origin of a coronary artery (AAOCA).[2] Herein we report a case in which preoperative electrocardiogram-gated 3-dimensional computed tomography (3D-CT) diagnosed QAV and anomalous origin of the right coronary artery (AAORCA).

A 60-year-old man with no overt cardiac symptoms was referred to Juntendo Hospital due to a diastolic heart murmur. A transthoracic echocardiogram revealed severe aortic regurgitation. Electrocardiogram-gated 3D-CT revealed precise anatomical configurations of the morphology; QAV and right AAOCA (**Figure A**,**B**). The right coronary artery (RCA) originated from the left coronary cusp and ran between the aorta and the pulmonary artery (**Figure C**). The proximal part of the RCA ran in the aortic wall and its intramural segment showed 25% stenosis (**Figure D**). Because the intramural course was lower and passed under the commissure, unroofing was not indicated for this case.

Accurate evaluation by electrocardiogram-gated 3D-CT is helpful in selecting a surgical procedure, such as unroofing, fenestration, reimplantation technique, and coronary artery bypass grafting, for AAOCA with QAV.[3]

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Disclosures

All authors declare that there are no conflicts of interest.

IRB Information

This study was approved by Juntendo Hospital Ethics Review Board (No. JHS20-014).

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