

An unusual defect and a rare combination: Gerbode defect and subaortic membrane

Nadir bir defekt ve nadir bir kombinasyon: Gerbode defekt ve subaortik membran

A 70-year-old female patient was referred to our department by the neurology clinic for cardiac evaluation. Transthoracic echocardiography revealed normal left ventricular systolic function with dilated left atrium and right cardiac chambers. Color Doppler echocardiography showed moderate mitral regurgitation, mild aortic valve insufficiency and subaortic membrane 10 mm below the aortic valve, which causes turbulent flow in the left ventricular outflow tract (LVOT). Transmembrane gradient was 30.33 mmHg (Fig. 1). Color flow Doppler echocardiography indicated moderate eccentric flow jet into the right atrium from the septal leaflet of the tricuspid valve (Fig. 2). At first, the flow was thought

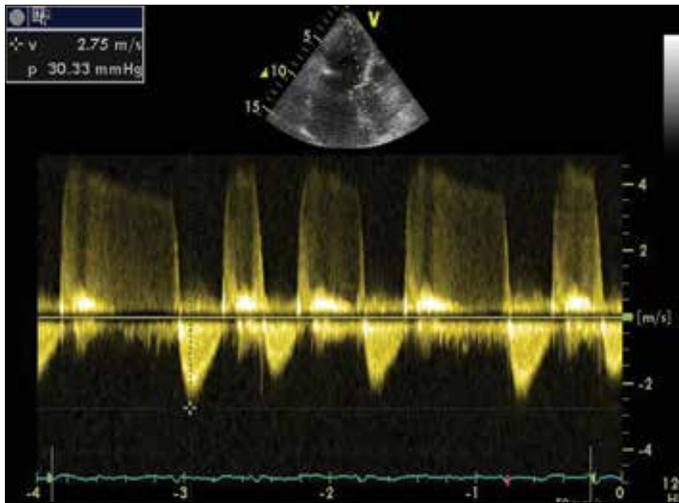


Figure 1. Transmembrane gradient in apical five-chamber transthoracic echocardiography view

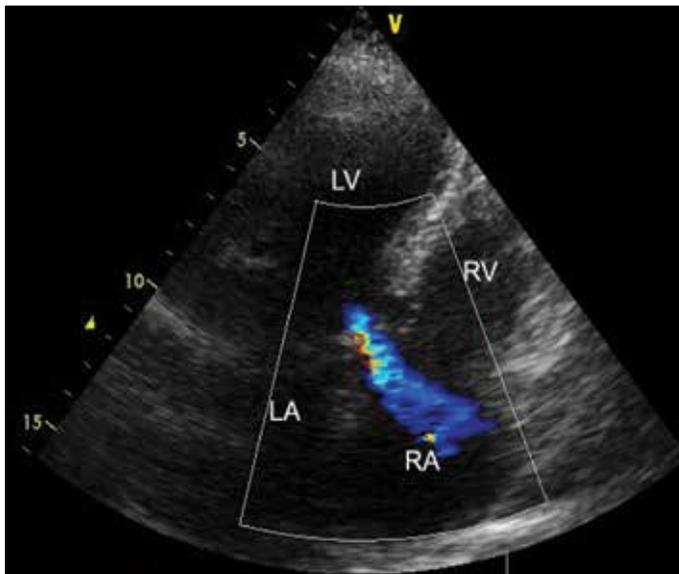


Figure 2. Flow from the left ventricle to the right atrium shown by color Doppler echocardiography in apical four-chamber view

LA - left atrium, LV - left ventricle, RA - right atrium, RV - right ventricle

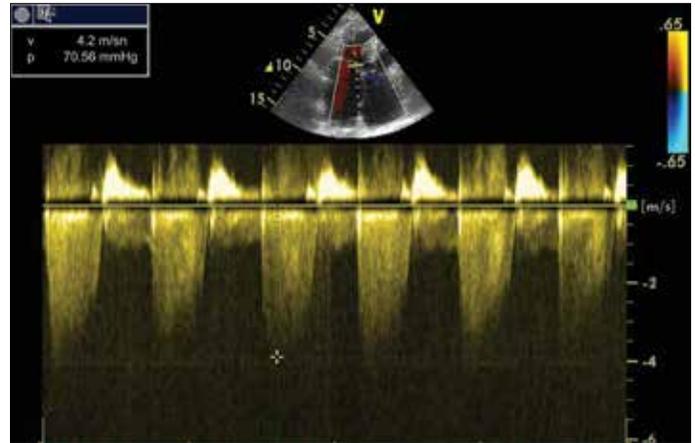


Figure 3. Pressure gradient measured through the Gerbode defect with CW Doppler echocardiography in apical four-chamber view

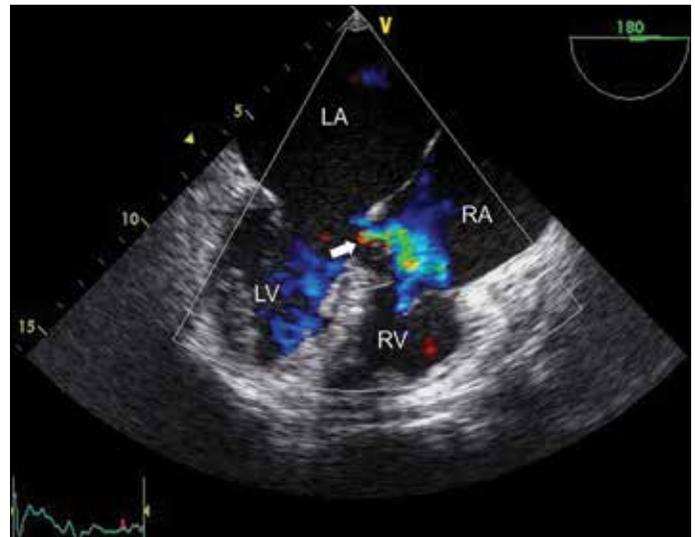


Figure 4. Supravulvar (direct) Gerbode defect in transesophageal echocardiography four-chamber (180°) view

LA - left atrium, LV - left ventricle, RA - right atrium, RV - right ventricle

to be tricuspid regurgitation but it appeared to originate from the membranous septum and to course along the atrial surface of the tricuspid valve consistent with a left ventricular to right atrial (LV-LA) communication. Peak gradient measured through the defect was 70.56 mmHg (Fig. 3). Transesophageal echocardiography showed a small perimembranous defect, 7 mm in size, connecting the left ventricle to right atrium (Fig. 4). Subaortic membrane and the turbulent flow in the LVOT was assessed more comprehensively (Fig. 5). There was a significant shunt with a 1.6 Qp/Qs ratio. Surgical treatment was suggested to the patient but not accepted. Although subaortic membrane is discerned easily by echocardiographic examination, a Gerbode defect (Fig. 6) might be misinterpreted inadvertently as severe pulmonary hypertension. Therefore, if the physician finds eccentric flow which does not resemble tricuspid regurgitation and predominantly huge right atrium, Gerbode defect should be kept in mind and transesophageal echocardiography should be performed for further evaluation.

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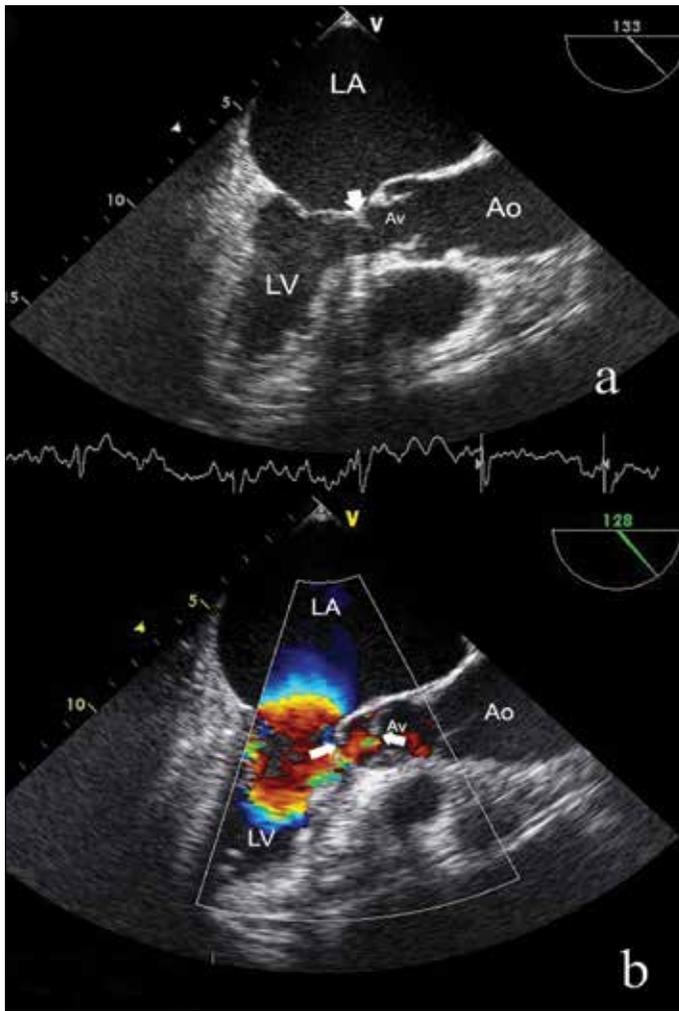


Figure 5. Two-chamber (120°) transesophageal echocardiography views of subaortic membrane (arrow-a) and the turbulent flow (arrow-b) in the left ventricular outflow tract

Ao - aorta, Av - aortic valve, LA - left atrium, LV - left ventricle

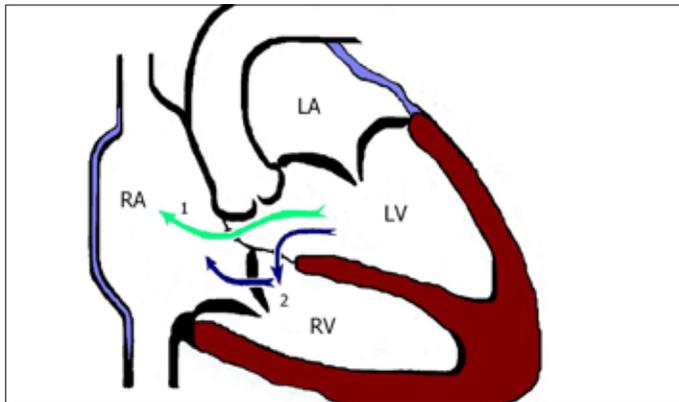


Figure 6. Schematic representation of Gerbode defect types. Defect number one (1) is the supraventricular (direct) type, where blood flows directly from the left ventricle to the right atrium. Membranous interventricular septum is divided into two parts by the septal leaflet of the tricuspid valve as supraventricular and infravalvular. Defect number two (2) is the infravalvular (indirect) type. The defect here is at the inter-ventricular septum below the tricuspid septal leaflet. Blood goes from the left to the right ventricle, and then to the right atrium

LA - left atrium, LV - left ventricle, RA - right atrium, RV - right ventricle

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Anomalous origin of the right coronary artery from the left sinus of Valsalva

Sol sinüs Valsalva'dan kaynaklanan sağ koroner arter çıkış anomalisi

A 50-year-old female patient was admitted to our service with complaints of dizziness and blackouts, occurred on exercise which had started for weight loss 10 days ago. The patient had never made like an exercise before and had never angina, palpitation or dyspnea symptoms. Physical examination findings were normal. Electrocardiography shows normal sinus rhythm. Transthoracic echocardiography (TTE) revealed

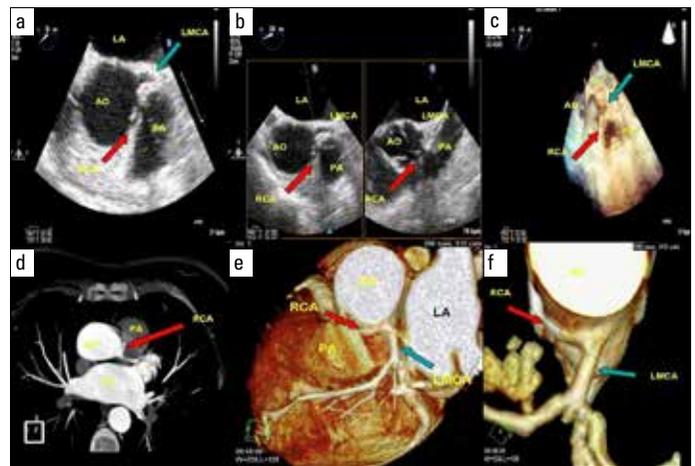


Figure 1. a) TEE image from 35° upper esophageal level shows an anomalous origin of the right coronary artery from the left sinus of Valsalva, b) TEE image from 20° upper esophageal level shows an anomalous origin of the right coronary artery from the left sinus of Valsalva and courses between the aorta and the pulmonary artery, c) 3D RT TEE shows an anomalous origin of the right coronary artery from the left sinus of Valsalva and courses between the aorta and the pulmonary artery, d) Coronary CT angiography axial image show that RCA originates from left sinus Valsalva with LMCA and courses between ascending aorta and pulmonary artery, e and f) Coronary CT angiography volume-rendering images show that RCA originates from left sinus Valsalva with LMCA and courses between ascending aorta and pulmonary artery

CT - computerized tomography, TEE - transesophageal echocardiography, 3D RT TEE - 3 - dimensional real - time transesophageal echocardiography, LMCA - left main coronary artery, RCA - right coronary artery