

Multimodality imaging of a congenital Gerbode defect

Wrodzony ubytek typu Gerbode'a — obrazowanie nieinwazyjne

Sait Demirkol¹, Fahri Gurkan Yesil², Ugur Bozlar³, Sevket Balta¹, Mehmet Ali Sahin², Adem Guler²

¹Department of Cardiology, School of Medicine, Gulhane Military Medical Academy, Etilik-Ankara, Turkey

²Department of Cardiovascular Surgery, School of Medicine, Gulhane Military Medical Academy, Etilik-Ankara, Turkey

³Department of Radiology, School of Medicine, Gulhane Military Medical Academy, Etilik-Ankara, Turkey

A 21 year-old male patient was admitted to our outpatient clinic due to shortness of breath. He had been diagnosed with a ventricular septal defect ten years previously. A systolic murmur was heard at the left sternal border. A 12-lead ECG showed a right bundle branch block. Two-dimensional transthoracic echocardiography (2D TTE) short-axis view revealed a tunnel-like appearance (Fig. 1A); 3D TTE en-face view after manual cropping of a full-volume acquisition demonstrated the defect at the membranous septum (Fig. 1B, C). To further define shunt anatomy, we applied 2D and 3D transoesophageal echocardiography (TEE), and cardiac magnetic resonance angiography (MRA). 2D and 3D TEE short-axis view revealed a tunnel-like appearance (Fig. 1D, F). 2D colour Doppler TEE showed a systolic flow between left ventricle (LV) and right atrium (RA) (Fig. 1E). Cardiac MRA coronal and short-axis views confirmed the defect at membranous septum and the shunt between the LV and RA (Fig. 2A, B). The membranous septum can be divided into atrioventricular and interventricular segments, based upon their relationship to the septal leaflet of the tricuspid valve. Defects in the atrioventricular portion of the membranous septum can result in LV to RA communications, also known as the Gerbode defect. LV-RA communications are mostly congenital, and account for approximately 0.08% of all congenital cardiac anomalies. Acquired LV-RA communications can result from endocarditis, trauma, valve replacement, or myocardial infarction. We herein demonstrated 2D and 3D echocardiographic and cardiac MRA features of a congenital Gerbode defect in an adult patient. Multimodal imaging of the Gerbode defect may be useful in revealing the localisation, shape, and size of the defect in detail.

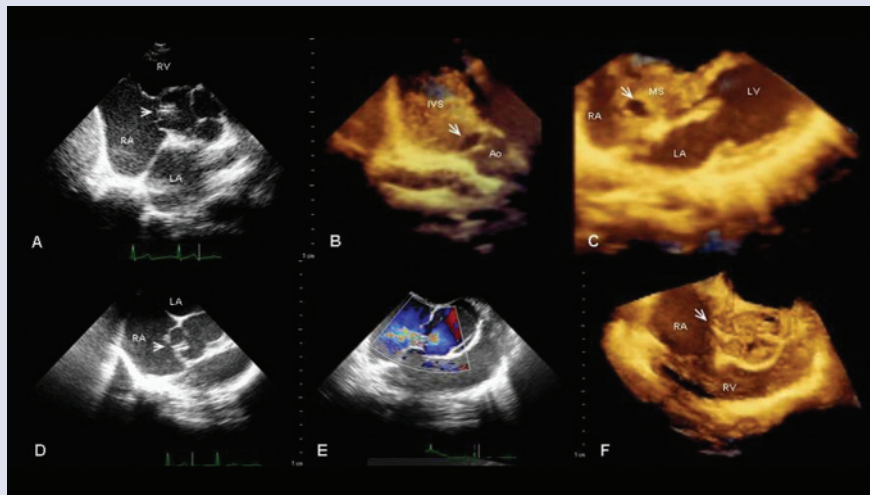


Figure 1. A. 2D TTE short-axis view revealed a tunnel-like appearance; B, C. 3D TTE en-face view after manual cropping of a full-volume acquisition demonstrated the defect at the membranous septum; D, F. 2D and 3D TEE short-axis view revealed a tunnel-like appearance; E. 2D colour Doppler TEE showed a systolic flow between left ventricle (LV) and right atrium (RA); RV — right ventricle; LV — left ventricle; LA — left atrium; Ao — aorta; IVS — interventricular septum; MS — membranous septum; arrow — Gerbode defect

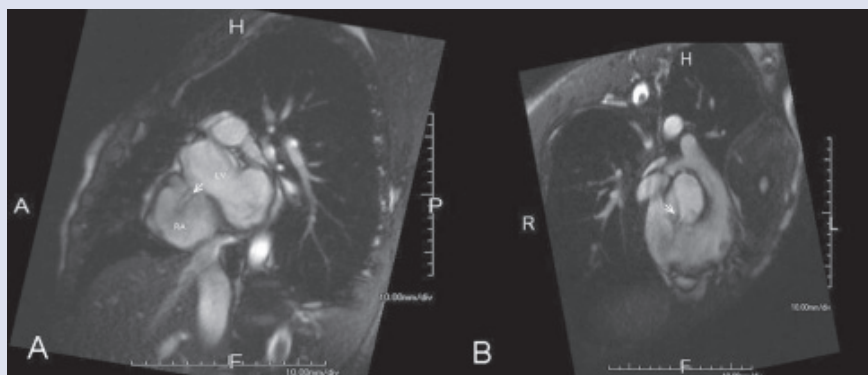


Figure 2. Cardiac MRA coronal (A) and short-axis (B) views confirmed the defect at membranous septum and the shunt between the left ventricle (LV) and right atrium (RA); LV— left ventricle; arrow — Gerbode defect

Address for correspondence:

Sait Demirkol, MD, Assistant Professor of Cardiology, Department of Cardiology, Gulhane School of Medicine, Tevfik Saglam St., 06018 Etilik-Ankara, Turkey, tel: +90-312-3044281, fax: +90-312-3044250, e-mail: saitemirkol@yahoo.com

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