



IMAGES IN CARDIOLOGY

Gerbode-type, left ventricular to right atrial communication in a 63-year-old patient

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Abstract: The left ventricular to right atrial communication, also known as the Gerbode defect, is a very uncommon cardiac anomaly, rarely reported in literature. We present the case of a 63-year-old woman who was admitted to our hospital for altered exercise capacity and diagnosed with a type II Gerbode defect. The communication was initially identified by transthoracic echocardiography and further characterized by magnetic resonance imaging. The case is meant to demonstrate the value of contemporary imaging techniques in the noninvasive assessment of the anatomy and hemodynamics of intracardiac shunts.

Keywords: Gerbode defect, echocardiography, cardiac magnetic resonance imaging

Rezumat: Defectul Gerbode sau comunicarea ventricul stâng - atriu drept este o anomalie cardiacă rară, puține cazuri fiind raportate în literatura de specialitate. Prezentăm cazul unei paciente în vârstă de 63 de ani, care a fost evaluată în serviciul nostru pentru alterarea toleranței la efort și diagnosticată cu un defect Gerbode de tip II. Comunicarea a fost ințial identificată prin ecocardiografie transtoracică și caracterizată suplimentar prin rezonanță magnetică nucleară cardiacă. Acest caz își propune să demonstreze valoarea tehnicilor imagistice contemporane în evaluarea neinvazivă a anatomiei și hemodinamicii șunturilor intracardiace.

Cuvinte cheie: defect Gerbode, ecocardiografie, rezonanță magnetică cardiacă

CASE REPORT

A 63-year-old Caucasian woman presented to our hospital for a recent alteration in her exercise capacity. She had been diagnosed with a systolic heart murmur in young adulthood, but, at that time, she underwent no further investigations. Physical exam was normal except for an accentuated, splitted second heart sound and a grade 3/6 systolic murmur at the left sternal border. The electrocardiogram showed a minor right bundle branch block. Transthoracic echocardiography raised suspicion of a communication between the LV and the RA (Figures 1, 2). The velocity of the systolic flow reaching the RA was 4 m/sec. The enlargement of the right chambers, a moderate pulmonic insufficiency and a mild tricuspid regurgitation with moderate pulmonary hypertension were also described. The ratio of pulmonary to systemic flow (Qp/Qs) was 2, consistent with a moderate left to right shunt. The cardiac magnetic resonance imaging (MRI) examination confirmed the presence of a 6 mm defect in the atrioventricular

septum, involving the septal leaflet of the tricuspid valve, with subsequent LV to RA communication (Figures 3, 4). The right ventricular (RV) ejection fraction was 38%.

Since the intracardiac shunt was well tolerated for a long period of time and the patient was only mildly symptomatic, we decided for a conservative approach with regular follow-ups.

The Gerbode defect is a very rare cardiac anomaly that exists in congenital¹ and acquired forms (secondary to trauma², infective endocarditis³, myocardial infarction⁴ or valve surgery⁵).

The definition of a Gerbode defect, according to the *Society of Thoracic Surgeons* is a true, direct, left ventricular to right atrial communication, located in the membranous septum⁶. The most common, indirect type of communication, is from the LV, through a ventricular septal defect into the RV and then, through a defect in the septal leaflet of the tricuspid valve, into the RAI.

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Figure 1,2. Colour Doppler transthoracic echocardiographic images (1 – apical 5 chamber view; 2 – parasternal short axis view): systolic flow between the LV and RA.



Figure 3,4. Cardiac MRI (3 - transversal and 4 - sagittal) views confirming the Gerbode defect (arrows).

This case demonstrates the value of contemporary imaging techniques such as echocardiography and cardiac magnetic resonance imaging in noninvasively assessing the anatomy and hemodynamics of intracardiac shunts. The data they provide influence clinical decision making and guide the therapeutic surgical or interventional procedures⁶.

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