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DOI:10.14744/AnatolJCardiol.2019.11786

Percutaneous treatment of the Gerbode defect causing heart failure after mitral valve surgery

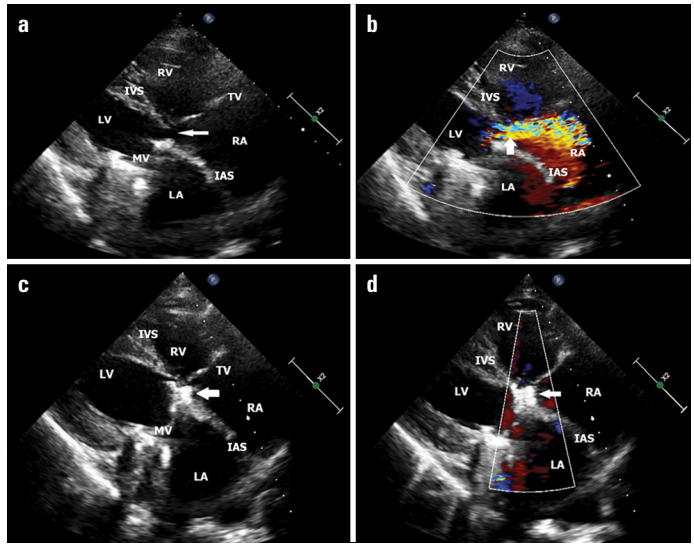

Figure 1. (a and b) Transthoracic echocardiographic images showing the Gerbode defect (GD) in the region marked with an arrow. (c) Image of the Amplatzer Duct Okluder-1 (ADO-1) in the postoperative GD region. (d) ADO-1 preventing the GD-related passage

A 45-year-old female who underwent mechanical mitral valve (MV) replacement 10 years before presentation was hospitalized for decompensated heart failure. Transthoracic echocardiography (TTE) revealed normal left ventricular diameters and ejection fraction, dilated left atrium, dilated right atrium (RA), and dilated right ventricle. Moderate tricuspid valve (TV) regurgitation was observed, and pulmonary artery systolic pressure was 65 mmHg. MV functions were within normal limits. However, a defect between left ventricle (LV) and RA, which

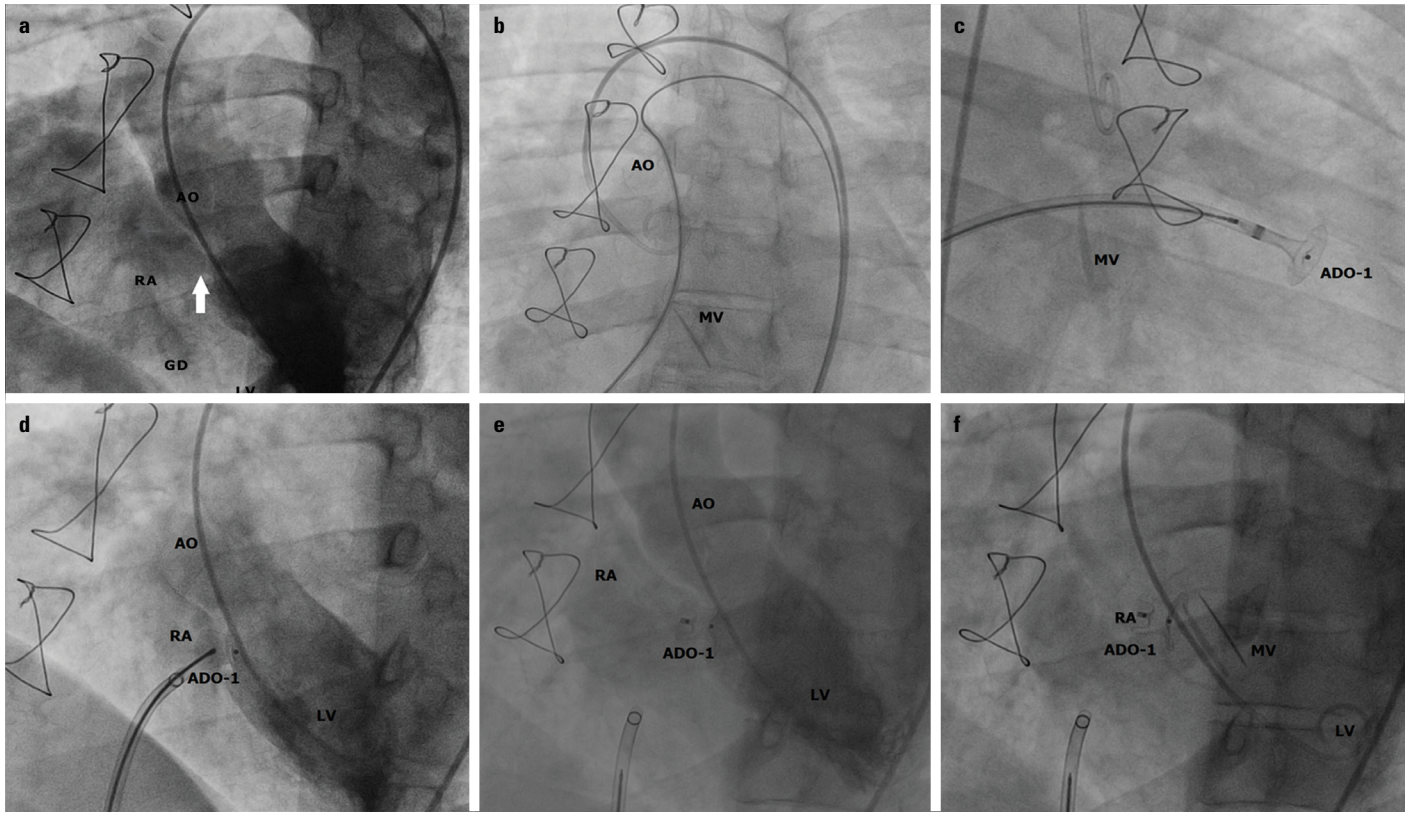

Figure 2. (a) Arrow indicates a connection between left ventricle and right atrium via the Gerbode defect. (b-d) Images of the Amplatzer Duct Okluder-1 (ADO-1) placement procedure. (e) Left ventriculography after releasing ADO-1. (f) Association of the mitral valve and ADO-1

caused marked left-to-right shunting, was observed by TTE. The defect was located immediately above the septal leaflet of TV and below the anterior leaflet of MV, which was consistent with the characteristics of Gerbode defect (GD) (Fig. 1a and 1b, Video 1). Accordingly, left ventriculography was performed, and it revealed a shunt flow from LV to RA (oximetry shunt ratio=2). Ventriculography revealed the following defect dimensions: 7 mm in length, 6.9 mm in width, and 10 mm from the left ventricular opening site (Fig. 2a). Due to a high risk of reoperation and the favorable anatomical location of the defect, its percutaneous closure with the Amplatzer Duct Occluder-I was performed (Fig. 2b-2d). After the procedure, no shunt flow was seen between LV and RA (Fig. 1c and 1d, Fig. 2e, Video 1). MV functions were found to be within normal limits (Fig. 2f).

Acquired LV–RA communication, also known as GD, after mitral valve surgery has been reported in the literature. Although the standard treatment for GD is surgical closure, patients with a high risk of reoperation and a favorable anatomical location of the defect can be treated by percutaneous closure procedures.

Informed consent: Informed consent was obtained from the patient.

Video 1. Transthoracic echocardiographic images of the Gerbode defect before and after the procedure.

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DOI:10.14744/AnatolJCardiol.2019.86721