

## Successful device closure of two separate atrial septal defects under the guidance of 3D transesophageal echocardiography

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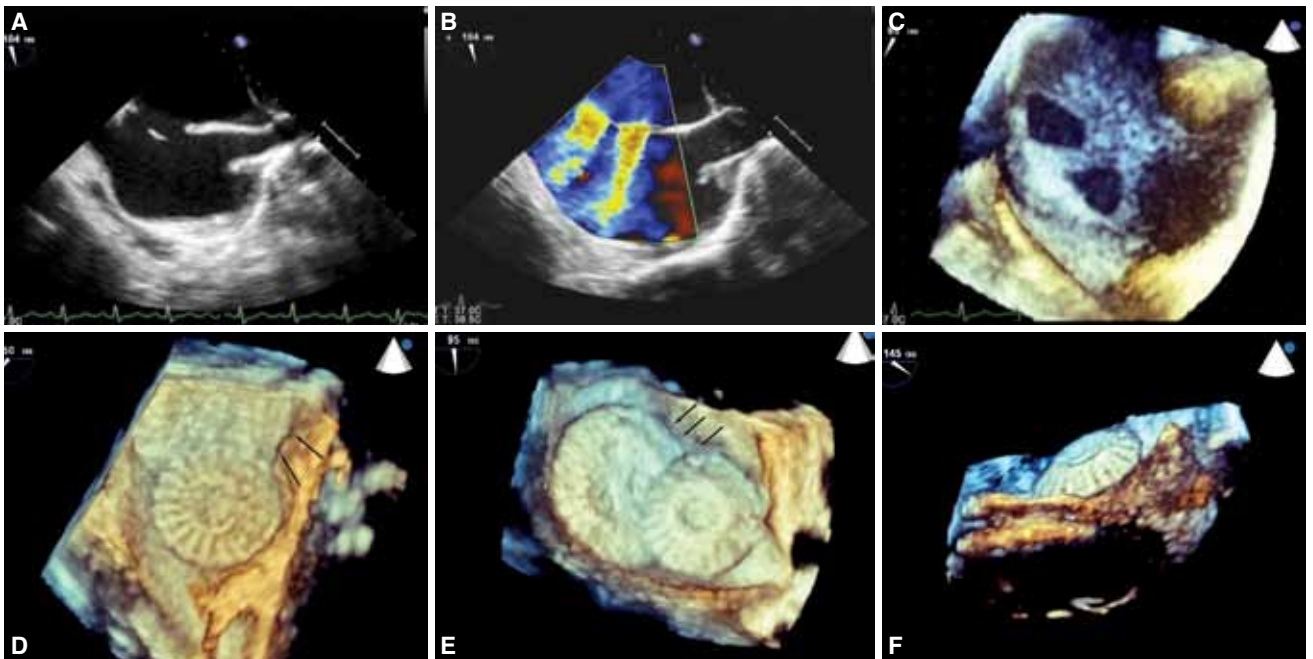
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A 67-year-old woman was referred to our hospital for the evaluation of previous transient ischemic cerebrovascular accident and dyspnea. She had hypertension which was well-controlled with medication. Echocardiography showed mild dilatation of the right heart chambers, moderate pulmonary hypertension (40 mmHg), and a significant

left-to-right shunt at the interatrial septum with pulmonary to systemic flow ratio of 2.6:1. Transesophageal echocardiography (TEE) revealed two separate septum secundum defects, 1.4 cm and 1.1 cm in size, close to the ostia of the inferior vena cava and superior vena cava, respectively (Fig. A-C). There was a 1-cm rim between the two defects. The rim distances were as follows: inferior vena cava rim 0.7 cm, superior vena cava

## İki ayrı atriyal septal defektin üçboyutlu transözofageal ekokardiyografi rehberliğinde kapatılması

rim 1.1 cm, superior rim 1.2 cm, inferior rim 1 cm, and aortic rim 0.8 cm. The total septum length was 4.6 cm. Percutaneous closure of the defects was planned. The stretched diameters of the larger and smaller defects were measured as 18 mm and 12 mm, respectively, by using a 30-mm sizing balloon. The larger and smaller defects were closed using 21-mm and 12-mm Occlutech Figulla ASD occluders, respectively, under fluoroscopic and TEE guidance. The position of the devices was checked by a push-pull maneuver. The smaller device was released following the larger one. It was ensured by TEE that there was no intrusion of either device on the atrioventricular heart valves or the right pulmonary veins. The next day, three-dimensional (3D) TEE showed a small residual shunt at the inferior vena cava margin of the larger device (Fig. D). The patient was followed-up with antiplatelet therapy. At four-month follow-up, 3D-TEE showed complete resolution of the residual shunt with endothelization and dense tissue deposition along the device border and perfect positioning of both devices (Fig. E, F).



**Figures.** (A) Transesophageal echocardiography (TEE) from the bicaval position (104 degrees) shows two separate atrial septal defects. (B) Color Doppler imaging of the defects. (C) Three-dimensional (3D) TEE visualization of the defects from the left atrial side. (D) Early post-procedural 3D-TEE visualization of the devices with a small residual shunt through the larger device. Late post-procedural 3D-TEE images showing (E) complete resolution of the residual shunt with endothelization and dense tissue deposition along the device border and (F) perfect positioning of the two occluder devices.