

Figure 3. Right coronary angiogram in RAO view shows non-dominant right coronary artery with occlusion at its mid segment
RAO-right anterior oblique

only 6 underwent diagnostic arteriography (2-10). The prevalence of coronary artery disease is thought to be no different in patients with or without dextrocardia, over 80 patients per year with dextrocardia may undergo cardiac catheterization (2, 3). Coronary angiography was first reported in dextrocardia in 1974 (3) in a patient who underwent left ventricular aneurysmectomy. Coronary artery bypass surgery in a patient with dextrocardia was first reported in 1982 (4).

In dextrocardia, positions of the coronary artery ostia relative to the sinuses and to the aortic arch are a mirror-image of the normal orientation. Since coronary catheters are not "left-" or "right-handed," they assume a

mirror-image position in the mirror-image anatomy. Thus, they maintain their standard relationships to the coronary ostia. Catheters can be passed using standard technique, except that catheters are rotated in the opposite site direction (e.g., counterclockwise to seat a Judkins right catheter).

Conclusion

Few angiographers will see more than one patient with dextrocardia and situs inversus during their career. We offer this information so that the angiographer faced for the first time with such a patient can be reassured that standard techniques, with the exceptions of opposite-direction catheter rotation and mirror-image angiographic angles will usually allow uncomplicated coronary angiography.

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Successful deployment of an atrial septal occluder device in a patient with an insufficient posterosuperior defect rim

Yetersiz arka-ön rim defekti olan hastada atriyal septal oklüder'in başarılı yerleştirilmesi

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Introduction

Transcatheter closure of atrial septal defects (ASDs) has more favorable outcomes than surgery in selected anatomically suitable ASDs

due to superior cosmetic results, the avoidance of cardiopulmonary bypass, a lower incidence of postoperative complications, and a shorter hospital stay (1). However, device embolization and malposition, and thrombus formation may occur as complications (2). Anatomically, ASDs

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with a stretched diameter of less than 20 mm and an adequate rim of 5 mm are suitable for transcatheter closure (3). With increasing experience, larger defects with a deficient anterosuperior rim could be closed with transcatheter techniques. Nonetheless, there is controversy about its safety in case of deficiencies in other rims. We describe our clinical experience using the atrial septal occluder (ASO) for catheter closure in a patient with a secundum-type ASD associated with posterosuperior rim defect of the atrial septum.

Case report

A 19-year old lady with history of dyspnea on exertion (New York Heart Association [NHYA] class II) was admitted to our center. Transthoracic echocardiography (TTE) and transesophageal echocardiography (TEE) demonstrated ASD secundum type, with its largest diameter 23 mm (Fig. 1), significant left-to-right shunt with pulmonary to systemic flow Qp/Qs ratio 3:1. The dimensions of rims were as following: superior=13 mm; inferior=7 mm; anterosuperior=9mm; posteroinferior=7 mm; and posterosuperior rim=3 mm that was deficient according to the definitions of Mathewson et al (4) (Fig. 2, 3). A decision was made to attempt percutaneous device closure with ASO after obtaining informed consent. Antibiotic prophylaxis (cephalothin), aspirin (325 mg) and clopidogrel (300 mg) and intravenous heparin (5000 IU) were prescribed before the procedure. The "stretched" diameter of the ASD was 26 mm using a 34 mm sizing balloon (AGA Medical Corp., USA). After introducing the long sheath over the exchange guide wire into the left upper pulmonary vein, the 26-mm ASO was deployed under fluoroscopic and TEE guidance, after several trials with some rotation. A secure position of the occluder was checked by a push-pull maneuver (the "Minnesota wiggle"). Transesophageal echocardiography ensured no intrusion of the device on the atrioventricular heart valves or the right pulmonary veins and no residual shunting and the device was released successfully. The patient was discharged home in good general conditions on day 3. One-and six-month follow-up showed no complications and echocardiographic control 6 months later showed no complications (Fig. 4, 5).

Discussion

Transcatheter closure is now increasingly used for closure of ASDs. A number of different devices including Sideris, ASDOS device, STARFlex,

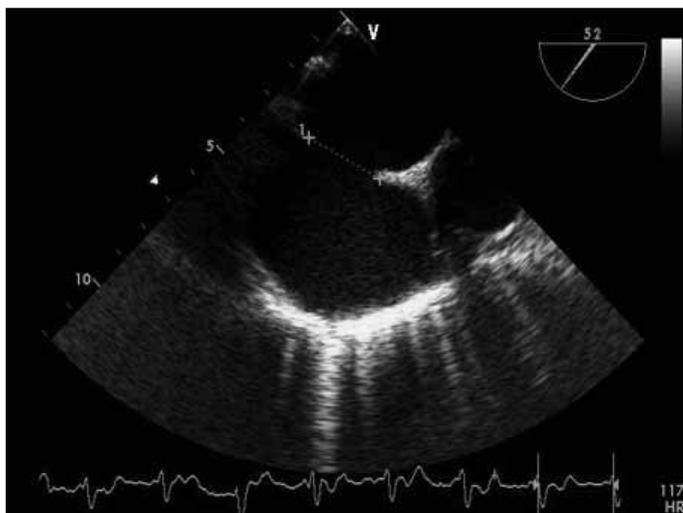


Figure 1. Transesophageal view of a secundum type atrial septal defect 2.3 cm in diameter

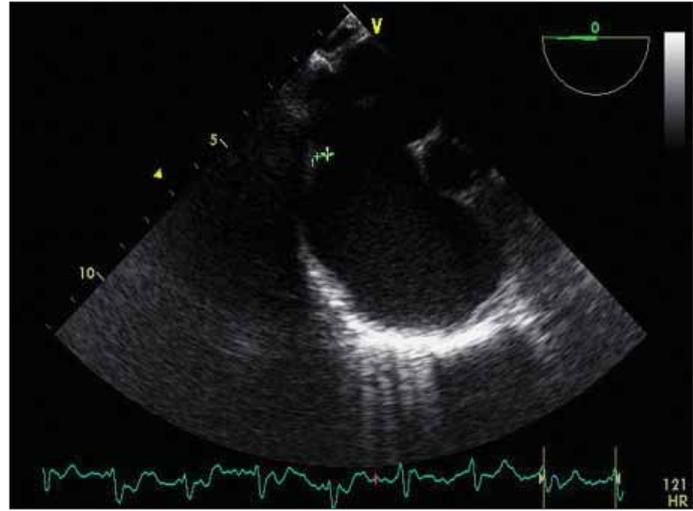


Figure 2. Transesophageal echocardiography view shows atrial septal defect with small posterosuperior rim (No:1) with about 3-mm length

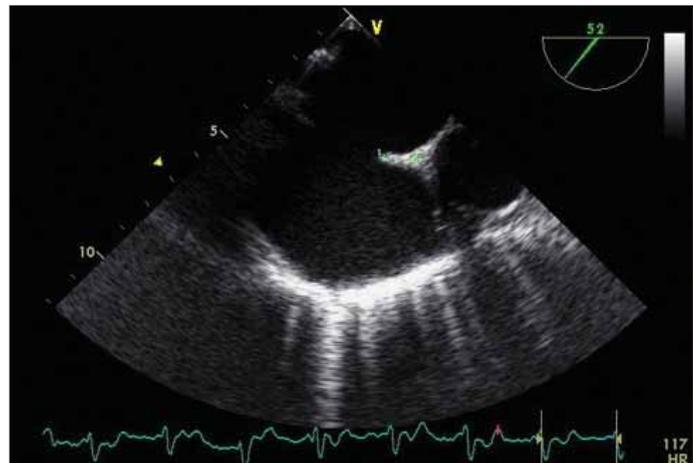


Figure 3. Transesophageal echocardiography view of a rim to aorta (aortic rim)

and ASO have been used for this purpose (5). The ASO closes the ASDs through stenting the defect with its connecting waist and eliminating any flow across the septum with the two flat discs. A minimum of a 5-mm rim of atrial septum around the defect had previously been suggested as a prerequisite for device closure with an ASO (3). In addition, a complex atrial septal anatomy, including large ASDs with deficient rims is not always amenable to transcatheter device implantation (6).

The major advantages of percutaneous ASD closure include less invasive procedure and shorter hospital stay. The ASO has the additional advantage of easy handling for its unique design (2, 7). Complications of transcatheter occlusion of the larger ASDs with deficient rims include device embolization, atrial tachyarrhythmias, thromboembolism, transient ischemic attacks, and even sudden death (2). In the case of absent anterosuperior rims, early cardiac perforation has been reported (8).

Du et al. (9) suggested that in defects with ≥ 3 sufficient rims, the device would effectively eliminate the shunt. However, redeployment tended to be more frequently required, and the incidence of residual shunts immediately after device deployment was slightly higher. In their study, patients with a deficient superior rim were not included, since the device could obstruct the orifice of the right pulmonary veins in cases with

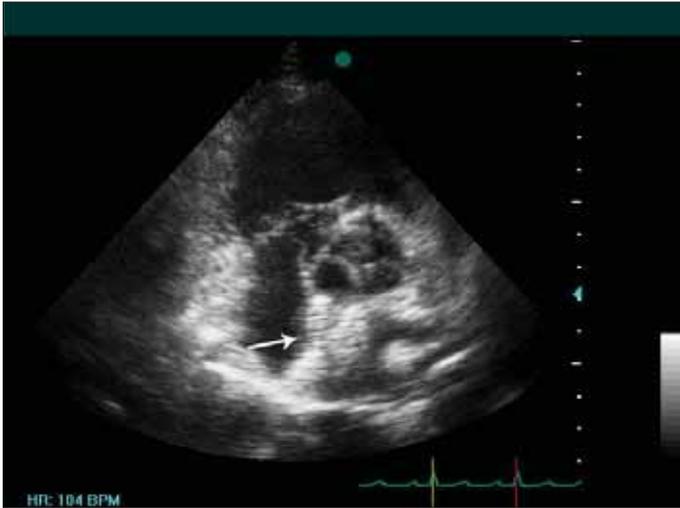


Figure 4. Transthoracic echocardiography, apical four-chamber view, atrial septal defect occluder device is shown in appropriate position (arrow)



Figure 5. Transthoracic echocardiography, parasternal short-axis view at aortic level; atrial septal defect occluder device is shown by arrow in appropriate position without compression effect on aortic valve

more superior and posterior defect locations (10). One of the factors associated with failure of device implantation is the deficiency of the posterior and inferior rims, thus excluded from most studies.

Conclusion

In our case, despite technical difficulties, the ASO was safely used for the closure of an ASD with insufficient posterosuperior rim. Our results regarding the safety of ASO placement for this patient, however, should be interpreted cautiously. Therefore, a higher number of cases and longer period of follow-up is required for drawing any conclusion.

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