

Intracardiac Echocardiography-Guided Device Closure of non-PFO/ASD Cardiac Shunts

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Introduction: Transesophageal echocardiography (TEE) and intracardiac echocardiography (ICE) are valuable imaging options for guidance of transcatheter interventions. The choice of either modality depends upon institutional and provider preference. While there are published data regarding the use of ICE during device closure of atrial septal defects (ASD) and patent foramen ovale (PFO), much less is known about its use during transcatheter closure of more complex shunts. We report our experience using ICE during transcatheter closure of non-PFO/ASD shunts.

Methods: We retrospectively reviewed all cases of transcatheter occlusion of non-PFO/ASD shunts using ICE guidance at Mayo Clinic from January 2002–December 2013.

Results: Fourteen procedures performed in thirteen patients (8 males, 61%) qualified for inclusion. The median age at time of intervention was 54 years (range 11-73). The median patient weight was 73 kg (range 37-99 kg). The most common lesions closed included ventricular septal defect (congenital and iatrogenic) [n=5 (38%)], aorta-atrial shunt [n=3 (23%)], and coronary artery fistula [n=2 (15%)]. Median procedure duration and fluoroscopy time were 133 minutes (range 38-192 minutes) and 34 minutes (range 16-91 minutes), respectively. General anesthesia was used for four cases; the remaining patients were managed with conscious sedation. There were no complications associated with ICE use during the procedure. After a mean follow-up duration of 47 months (range 7-95 months), four patients had small residual shunts seen on echocardiography, one of whom required further intervention.

Conclusion: ICE may be helpful in directing transcatheter closure of complex intracardiac shunts. In most cases, ICE may be performed without the use of general anesthesia.