

Alcohol Septal Ablation (ASA)

Annapoorna S. Kini, MD

Hypertrophic obstructive cardiomyopathy (HOCM) is typically genetic in nature and reveals itself in the second or third decade of life. Patient complaints include exertional chest pain, shortness of breath, fatigue, fainting, and palpitations. Rarely, sudden death can occur. There are a range of treatments available for symptomatic HOCM. First-line treatment consists of medical management with drugs such as beta-blockers, calcium channel blockers, and other negatively inotropic medications (drugs that slow the heart rate and improve the filling of heart). For patients with persistent symptoms, the recommended treatment is open-heart surgery and surgical removal of the overgrown heart muscle (septal myectomy) to enhance blood flow from the left ventricle.

The Mount Sinai Cardiac Catheterization Laboratory is one of the relatively few high-volume centers offering a select group of HOCM patients with refractory or persistent symptoms another choice, alcohol septal ablation (ASA). This minimally invasive procedure does not require general anesthesia or lengthy recovery time and is rarely associated with complications of open-heart septal myectomy.

While selecting patients for this procedure, we follow certain standards based on echocardiographic assessment of the hypertrophic heart muscle. Thicknesses less than 16 mm typically respond to

medical management while septa thicker than 26mm should not undergo ASA.

ASA is performed percutaneously, eliminating the need for surgery, but yields similar results in terms of removing overgrown heart muscle. This procedure involves injecting 98 percent alcohol via catheter into a carefully selected artery that supplies blood to the overgrown tissue in the enlarged septum. The highly-concentrated alcohol is injected slowly (1-3cc/second) directly into the heart muscle and is left in place for several minutes. The treatment effect starts immediately by causing controlled cell death at the target location. Typically, the goal is to remove no more than two grams of obstructive muscle mass, as complications such as irregular heart beat can occur if a more aggressive approach is used, necessitating a permanent pacemaker. Strict adherence to our highly cautious patient selection protocols, complemented by extremely efficient post procedure management in CCU, has helped optimize our outcomes.

Following the procedure, patients are closely monitored in ICU for two days with a temporary pacemaker inserted via the jugular vein in the neck with particular attention paid to heart rhythm and changes in blood chemistry. Approximately 10 percent of the patients after ASA will require a permanent pacemaker due to persistent heart block. Patients typically report immediate improvement in their symptoms and once safely stabilized, are able to go home with minimal restriction on physical activity for the following two to four weeks. The ablative process completes over several weeks as a thin layer of scar tissue forms and LV diastolic function improves. We do follow-up echocardiograms of the post-operative patient in three to six months.

Reference:

Alcohol septal ablation for the treatment of hypertrophic obstructive cardiomyopathy: A multicenter North American Registry. *J. Am Coll Cardiology* 2011; 58: 2322-8.

Key Points

- For HOCM patients with persistent symptoms, open-heart surgery and surgical removal of the overgrown heart muscle (myectomy) is the recommended treatment.
- Mount Sinai's Catheterization Laboratory offers a minimally invasive procedure known as alcohol septal ablation (ASA) to a select group of HOCM patients with refractory symptoms.
- This procedure involves a slow injection of 98 percent alcohol via catheter in a carefully selected artery supplying blood to the overgrown tissue in the enlarged septum.
- Recent reports have suggested that improvement of left ventricular outflow gradients with ASA improves prognosis of these patients, and results are comparable to myectomy.
- While selecting patients for this procedure, we follow certain standards based on echocardiographic assessment of the hypertrophic heart muscle.

Septal Ablation

