



A hole in the heart: ASDs and PFOs

Patent foramen ovale (PFO) and atrial septal defect (ASD) are common congenital cardiac defects of the interatrial septum. Shunting of blood from left atrium to right atrium, or vice versa may have important consequences in some patients and lead to consideration of closing these defects.

PFO attributes

A PFO is a congenital lesion that persists into adulthood in 25-30% of the population. It is a flap-like tract allowing transient shunting in either direction.

PFOs are usually asymptomatic, however, occasionally a 'paradoxical' embolism passes from the venous system across a PFO to the brain rather than to the lungs. It is often difficult to prove that this is the cause of a stroke, however, PFO closure may be considered, particularly in younger patients with recurrent strokes, if no other cause is identified. A PFO may be associated with an aneurysmal interatrial septum which is thought to increase the risk of stroke, but does not generally interfere with closure of the defect.

PFOs are more common in patients with migraines, and also increase the risk of decompression sickness in scuba divers, however, screening for PFO is generally not indicated in these patients, and PFO closure is not of proven benefit.



■ Moderate size secundum atrial septum defect adjacent to the aortic valve (TOE image; IAS = interatrial septum).

ASD attributes

An ASD is an open communication in the interatrial septum that allows constant shunting of blood. ASDs occur in around 1% of the population – they vary in size and position, may be multiple and may be associated with other congenital cardiac defects.

ASDs that present with symptoms such as dyspnoea or exercise intolerance, features of heart failure or pulmonary hypertension, or paradoxical embolism usually require closure. Atrial fibrillation or flutter may be an indication for closure in some patients.

Imaging of choice

PFOs and ASDs are sometimes identified by transthoracic echocardiography, however, the interatrial septum is often poorly visualised and defects are easily missed. Transoesophageal echocardiography is the imaging technique of choice and is able to assess the interatrial septum in detail.

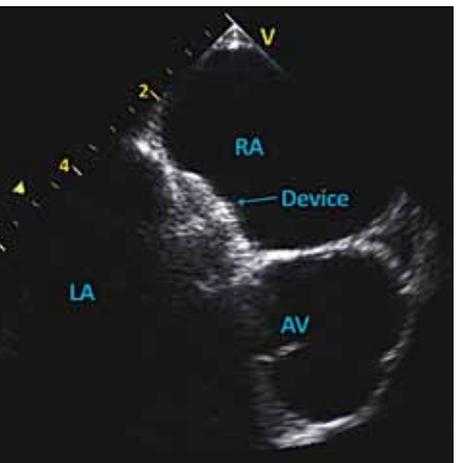
Sometimes PFOs are so small that the use of agitated saline contrast is required to demonstrate intermittent shunting of the contrast from the venous right atrial circulation across the septum to the left atrium, implying the presence of a PFO.

Principles of management

Asymptomatic PFOs or small ASDs generally do not require any specific treatment, and antibiotic prophylaxis is no longer routinely recommended.

For those associated with a cryptogenic stroke, options include antiplatelet or anticoagulant therapy, or closure of the defect. The decision is often difficult.

Symptomatic or haemodynamically significant ASDs generally require closure. PFOs and ASDs may be closed with surgery, or



■ Asecundum ASD after percutaneous closure showing satisfactory seating of the device (TOE image; AV=aortic valve).

percutaneously using a prosthetic closure device generally introduced via the right femoral vein. Percutaneous closure is possible in most instances, however, very large ASDs, multiple defects and patients with other surgical lesions usually require an open approach. ■



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