# What is An Atrial Septal Defect?

An Atrial Septal Defect (ASD) is an opening between the upper chambers of the heart. There are three types of ASDs - 1) Primum - usually associated with an abnormal Mitral valve, 2) Secundum -the most common type and 3) Sinus Venosus - this is usually associated with abnormal placement of the Superior Vena Cava into the Right Atrium and a pulmonary vein draining into the Right Atrium. Everyone is born with a small hole between the upper chambers of the heart called a **Patent Foramen Ovale.** Most of these close within a year of age and are not clinically important.

Sometimes these holes can be big enough that they need to be closed. ASDs are usually silent at birth and do not become evident until the third or forth year of life. On occasion, a large ASD will be found during the first year of life. Roughly one third of ASDs found in babies will spontaneously close by the third year of life. The amount of blood flow across the hole is dependent on the size of the hole and the pressure difference between the two atria. At first, the pressure (or compliance) is very similar between the right and left atria. With time, the pressure on the left side increases relative to the right because of increasing thickness of the Left Ventricle and more and more blood will flow across the hole. This process causes a gradual enlargement of the right sided chambers of the heart.

Normally, patients with an ASD have no symptoms during childhood. As they become teenagers most will experience decreased exercise tolerance compared to their peers. If a significant ASD is allowed to persist into adulthood the pressure in the lungs (pulmonary artery pressure) will increase and can sometimes cause permanent damage to the lungs and ultimately early death. Adults with ASDs are also at risk for having a stroke. Patients with an ASD do not need to have SBE Prophylaxis according to AHA guidelines.

Numerous techniques such as physical exam, chest X-Rays and the echocardiogram are used to diagnose and decide if an ASD needs to be closed. If the blood flow out the Pulmonary Artery is twice that of the Aorta, then the hole should be closed. Some patients are at high risk of strokes because their blood clots too fast and these patients should have their ASDs closed even if it is relatively small. At this time we are recommending that most ASDs can be closed with catheter delivered devices **(**Amplatzer). They can be used in moderate sized holes in the central portion of the septum (wall). The advantage with these devices is that surgery can be avoided and they go home the next day. They cannot be used for sinus venosus or primum type ASDs. There are some holes that are too big to be closed with a device. Thus far, devices cannot be used in children less than one year of age because of the size of the catheter needed to deliver the device. There are still some concerns about long-term outcomes with the devices, such as clot formation and potential for the device to move out of position. Surgery can still be done as a second option. Robotics surgical closure is now becoming more popular.

Once an Atrial Septal Defect is closed the heart will usually return to a normal size and the patient is considered “cured”. Life Insurance companies will even give standard policies to patients once closure is found to be successful. Sometimes patients will have problems with irregular heartbeats after surgery or device closure even though the hole is completely closed. For this reason it is important for the patient to continue to be followed after surgery.

If you have any questions, please ask one of the doctors.

# What is An Atrial Septal Defect ?