Atrial Septal Defect (ASD)

Atrial Septal Defect (ASD) is a congenital heart defect caused by a hole in the septum that divides the right and left atria. Many patients are asymptomatic, but cardiac examination reveals a wide and fixed split S2 with a systolic ejection murmur. If pulmonary hypertension results, patients can experience cyanosis, dyspnea and easy fatigability. Definitively diagnosis is typically made with echocardiogram. Most ASD lesions will close spontaneously, but lesions causing symptoms or CHF require surgical repair. Atrial Septal Defect (ASD) is a congenital heart defect caused by a hole in the septum that divides the right and left atria. Many patients are asymptomatic but cardiac axamination reveals a wide

PLAY PICMONIC

Pathophysiology

Hole in Septum between the Atria

Hole in Wall between Atria

Atrial septal defect (ASD) is a congenital heart defect caused by an opening in the septum that divides the right and left atria. Because of the pressure gradients, blood typically shunts across the interatrial septum from left to right.

Symptoms

Often Asymptomatic

Thumbs-up

Small defects are often asymptomatic and may go undiagnosed for years.

Wide and Fixed Split S2

Wide Splits Stethoscope girl in a (2) Tutu

There is a wide and fixed split S2 due increased blood in the right heart, which delays closure of the pulmonic valve. There may also be a systolic ejection murmur at the upper left sternal border due to increased blood flow through the pulmonic valve.

Cyanosis and Dyspnea

Cyan-crayon and Disc-P-lungs

Large defects often present with easy fatigability, frequent respiratory infections and failure to thrive (FTT). Increased blood flow through the pulmonary vessels may result in pulmonary hypertension. The increased pulmonary resistance leads shunt reversal (Eisenmenger syndrome), causing cyanosis and dyspnea.

Easily Fatigued

Sleepy-guy

Some patients may experience symptoms such as easy fatigability, recurrent respiratory infections, FTT and exertional dyspnea.

Diagnosis

Chest X-ray shows Increased Pulmonary Vascular Markings

Chest X-ray with Up-arrow Vascular Marks on Lungs

Chest radiograph findings include cardiac enlargement secondary to dilation of the right atrium and right ventricle along with increased pulmonary vascular markings.

Echocardiogram

Echoing Cardiogram

Using an ultrasound, sound waves are used to visualize the structures of the heart. The transthoracic approach usually confirms the diagnosis of ASD, but the transesophageal approach is often necessary for more precise measurements. The electrocardiogram (ECG) often shows normal sinus rhythm, a right axis deviation and incomplete right bundle branch block.

Treatment

Surgery if CHF as Child

Surgeon with a Child holding a CHF Heart-balloon

Surgery or percutaneous transcatheter approach are used in closure of an ASD in patients with symptoms or CHF.

Antibiotic Prophylaxis

ABX-guy with Purple-axes

Patients with a repaired ASD requiring prosthetic material or device and patients with repaired ASD with a residual defect must receive prophylactic antibiotics for dental procedures or surgery.

Most Close Spontaneously

Closing spontaneously with Spartan

Spontaneous closure is most common in young patients who have small defects. There is no surgery indicated in asymptomatic children without significant left to right shunting.