



Atrioventricular Septal Defect

A GUIDE TO HELP UNDERSTAND YOUR BABY'S HEART



PROVIDED BY THE
CENTER *for* ADVANCED FETAL CARE
the FETAL HEART PROGRAM



UNIVERSITY *of* MARYLAND
MEDICAL CENTER

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This guide will help you understand your child's heart. It is not a diagnosis and should never be used instead of medical advice.

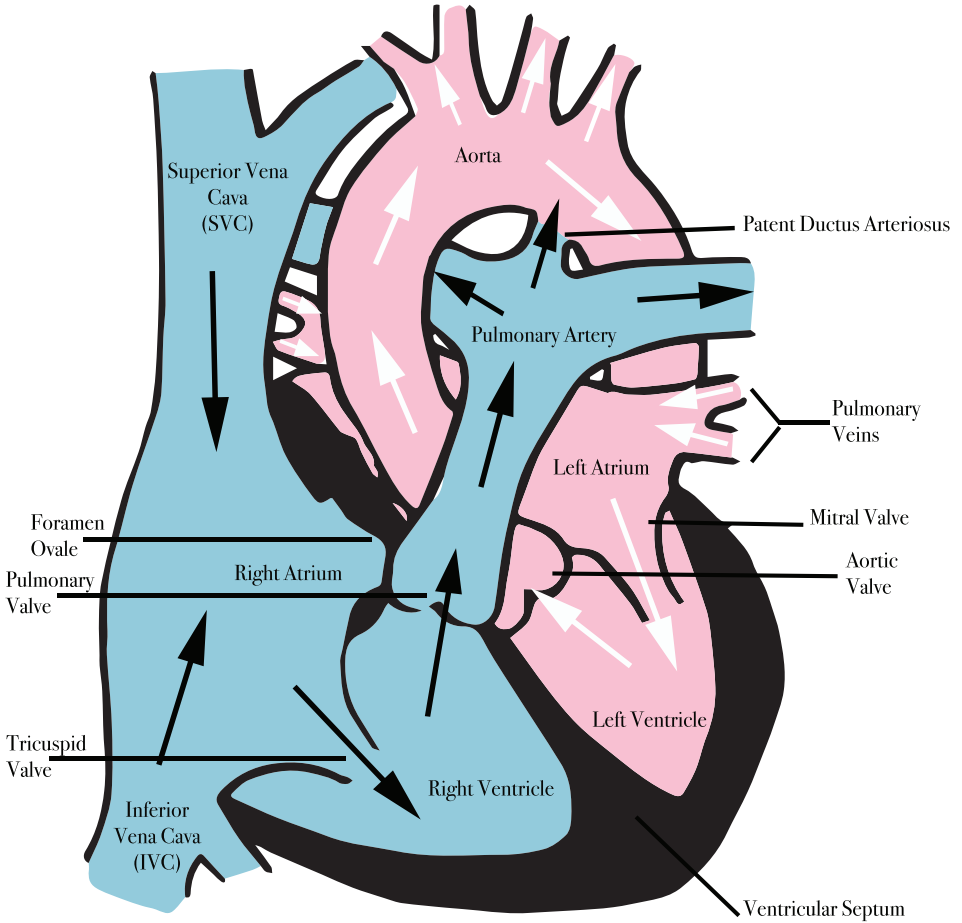
Our goal at the Center for Advanced Fetal Care is to assist you on the journey ahead and help educate you to better communicate with your team of physicians, friends and family.

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Illustrations by Dr. Alicia Chaves



The Normal Heart



The heart is a complex organ which pumps blood through the body. It drives the circulatory system, which carries oxygen and nutrients to the vital organs through a system of arteries and veins.

The heart has four chambers. The top two chambers are called the atria, which are separated by the atrial septum. The bottom two chambers are the ventricles, which are separated by the ventricular septum. As blood passes through each individual chamber, it exits through a valve. Each side of the heart works as its own pump.

Pump 1 - Right side pumps blood to the lungs. (blue on diagram) Blood travels from the right atrium through the tricuspid valve into the right ventricle. From the right ventricle, it travels through the pulmonary valve into the pulmonary artery to the lungs. Oxygenated blood from the lungs returns to the left atrium through the pulmonary veins.

Pump 2 - Left side pumps blood to the body. (pink on diagram) From the left atrium, oxygenated blood travels through the mitral valve to the left ventricle. Then, blood exits through the aortic valve to the aorta, the main artery, sending blood to the rest of the body. Once blood has supplied oxygen to the vital organs, it returns to the right atrium through the inferior vena cava (IVC) and the superior vena cava (SVC), the main veins of the body, to begin the process again.



What is a congenital heart defect?

A congenital heart defect is an abnormality of the structure and/or function of the heart. The defect typically develops during the early stages of pregnancy.

Why did this happen to my baby?

A congenital heart defect is the most common abnormality found in babies. Congenital heart disease may occur due to environmental factors, chromosome abnormalities, or genetic conditions; the majority of heart defects are multifactorial, which means that it occurs because of interactions between genes, chance, and the environment. In most cases, there is not an explanation for why a baby is born with a heart defect.

It is important to remember that any baby can have a congenital heart defect. Neither parent is to blame. Our hospital offers monthly support groups for families with children born with a congenital heart defect.

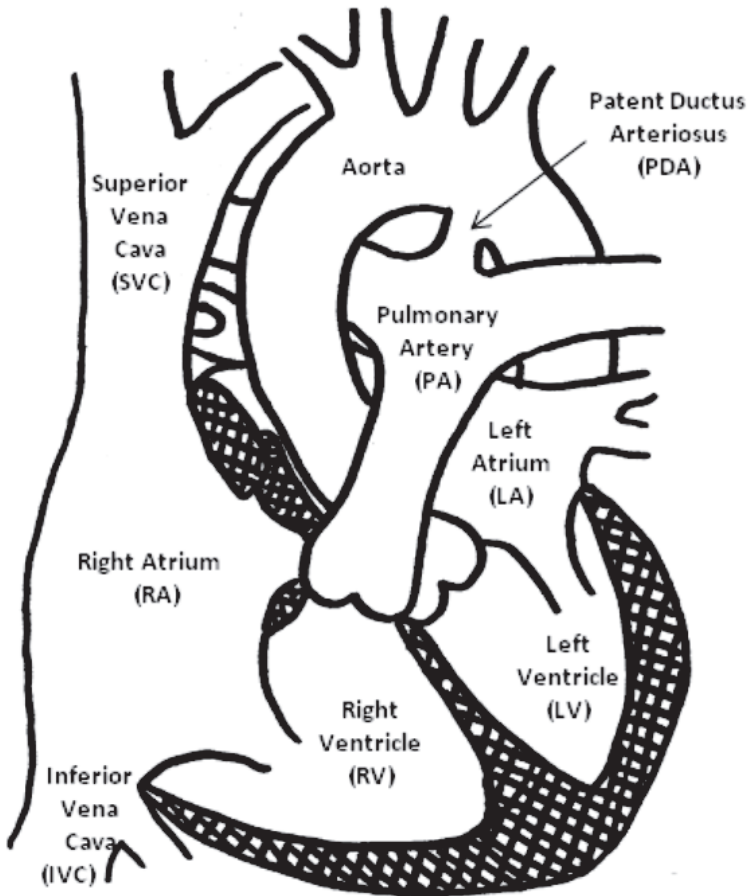
For more information, visit the fetal heart program online at: umm.edu/programs/fetalheart/patient-information/resources



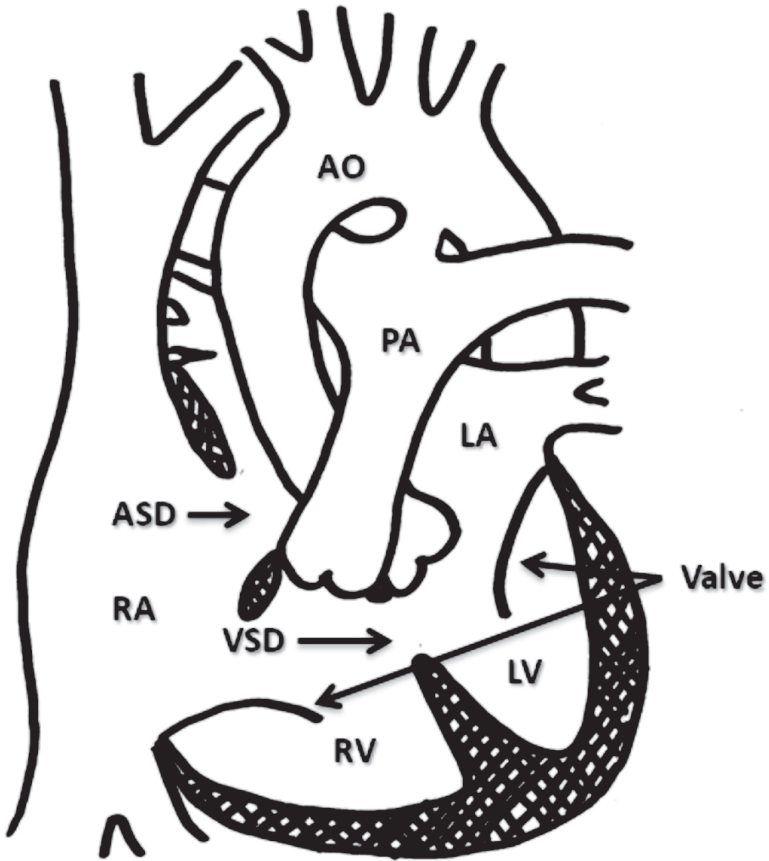
What is an Atrioventricular Septal Defect?

Atrioventricular septal defect (AVSD) is a congenital heart defect (CHD). In an AVSD, the mitral and tricupsid valves are combined into one common AV valve. It is also referred to as an atrioventricular (AV) canal or an endocardial cushion defect.

Normal Heart



Atrioventricular Septal Defect



For more information visit the fetal heart program online at:
umm.edu/programs/fetalheart/health-information/services/av-canal

How is an Atrioventricular Septal Defect Diagnosed?

An AVSD is diagnosed by an echocardiogram (ultrasound of the heart). A first trimester screening ultrasound (nuchal translucency screening), may help identify a patient with a higher risk for having a baby with an AVSD. Sometimes an AVSD is not detected until after birth. Your baby may have a murmur (abnormal heart beat) that indicates the problem. An AVSD is often seen in a baby who has Down Syndrome.

What causes an Atrioventricular septal defect?

The exact cause of AVSD is unknown. An AVSD is common in Down Syndrome, but can occur with other genetic syndromes. A baby who has an AVSD caused by a chromosomal or genetic condition, usually has physical and developmental problems, too. Many of these chromosomal conditions can be tested for during pregnancy with either a chorionic villus sampling (CVS) or an amniocentesis. These procedures are associated with a small risk of miscarriage; however, many providers and patients believe that the benefits outweigh the risks. If a family chooses not to have these tests during pregnancy, all newborns with AVSD will be screened for genetic and chromosomal conditions.

What can I expect during my pregnancy?

If your baby is diagnosed before birth with an AVSD, a team of specialists will care for you and your unborn baby. The team at the University of Maryland Medical Center includes a maternal fetal medicine specialist (MFM), cardiologists (fetal and pediatric), genetic counselor, neonatologist, and a pediatric cardiac surgeon. Your baby will be monitored closely by fetal ultrasounds and a delivery plan will be discussed among you, your obstetrician, and the various other specialists. Induction of labor may be scheduled for a pregnancy affected with an AVSD to ensure that your care team is present at delivery. If there are no maternal or fetal issues other than the baby's AVSD, our goal is for you to have a normal delivery.

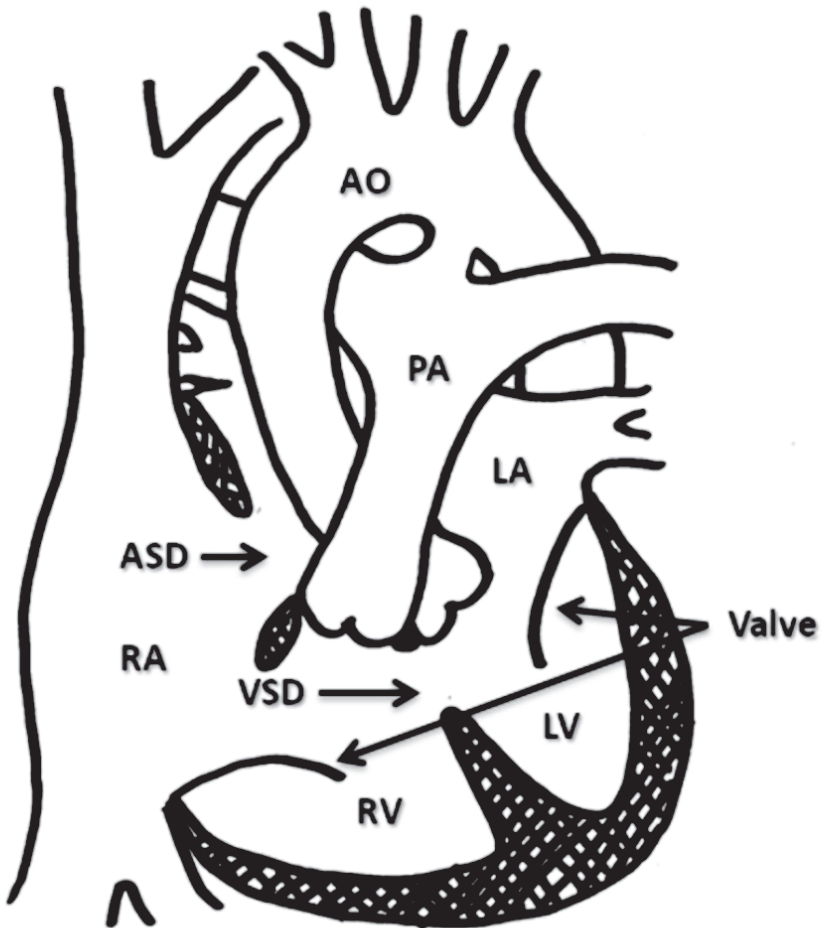
What can I expect after my baby is born?

Most babies with an AVSD do well after birth. If the baby does not have any other medical problems, like Down syndrome, the baby may be able to stay with you after delivery. An echocardiogram will be done to confirm the defect. The baby may be discharged with you and return for follow-up cardiology appointments. If there are other cardiac issues, or if there are any problems after birth, the baby will go to the neonatal intensive care unit (NICU). The specialists in the NICU will closely monitor your baby's vitals. Because the heart has to work extra hard to pump blood to the rest of the body, a baby with this heart defect may develop symptoms of heart failure, including breathing harder and faster, having trouble feeding, and poor weight gain. In some cases, medications may be needed.

How is an Atrioventricular Septal Defect treated?

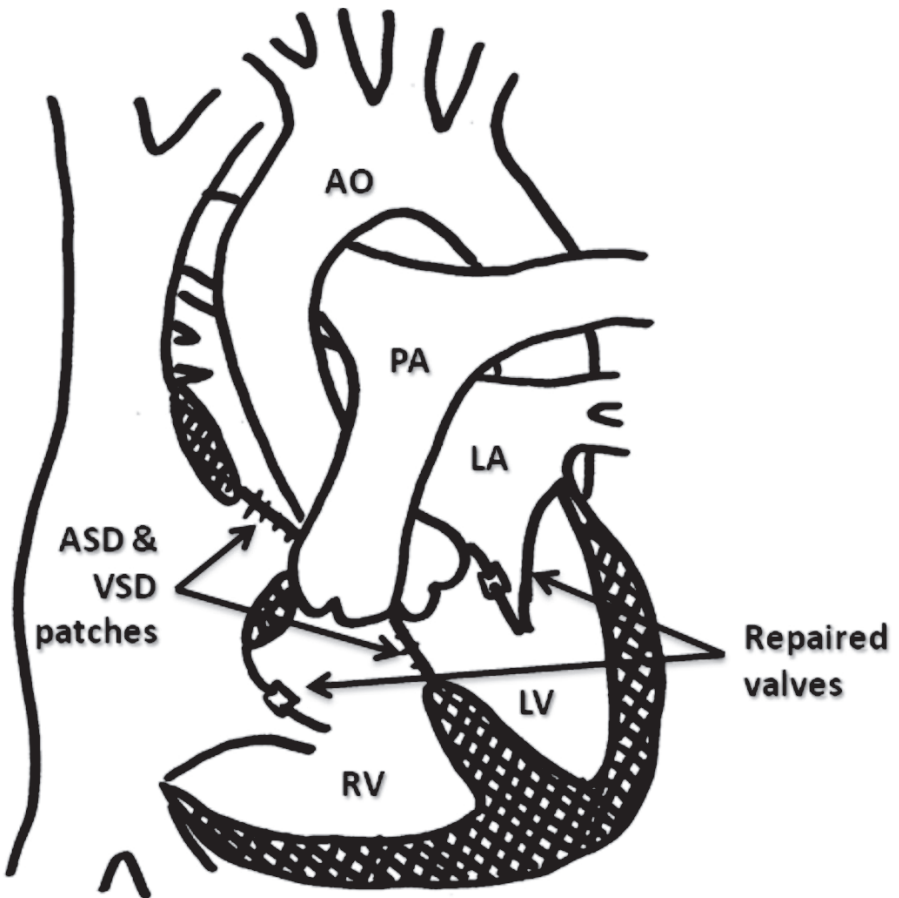
All babies with an AVSD will require surgery. Although some babies may need surgery sooner, almost all babies will have surgery by 6 months of age. The surgeon will repair the AVSD by closing both holes with a patch and dividing the common AV valve into two separate parts. Babies are usually in the hospital for 5 to 10 days after surgery.

Before Surgery



The operation is very effective at closing the holes and dividing the single valve into two separate valves. The mitral valve, on the left side of the heart, may leak (regurgitation) or become narrow (stenosis). A mild amount of regurgitation or stenosis does not usually cause problems. But, if regurgitation or stenosis becomes severe, some children may need additional surgery to repair or replace the valve. About 10% of patients will need a repeat surgery on the valve.

After Surgery



Will my baby have a normal childhood?

The long term outlook for AVSD is good. The survival rate from surgery is high. Your baby will be monitored throughout life by a cardiologist. The cardiologist will look for arrhythmias, mitral valve regurgitation, obstruction of blood flow from the aorta to the rest of the body, and/or high blood pressure in the lungs (pulmonary arterial hypertension). Children are usually able to participate in normal activities, including sports. In some cases medication or a pacemaker may be necessary. Your cardiologist will decide if your child should avoid any activities.

Will we have another child with a congenital heart defect?

Studies suggest that if you have one child with a congenital heart defect, your risk of having another child with a heart defect is about 2%-3%. If your baby's congenital heart defect is associated with a chromosome abnormality or a genetic syndrome, a genetic counselor can discuss with you and your family the risk of having another baby with the same condition. In any future pregnancies, we highly recommend nuchal translucency screening with an early fetal echocardiogram during your first trimester. Then, we recommend a targeted anatomy ultrasound between 18-20 weeks, and a fetal echocardiogram between 22-24 weeks.

How can the Fetal Heart Program help?

The Fetal Heart Program at the University of Maryland Medical Center is dedicated to the care and support of you and your unborn child. Our world class program aims to diagnose congenital heart defects as early, and as accurately as possible. We strive to create personalized prenatal care and optimize your delivery plan. Our multidisciplinary team is devoted to you and your baby's needs before and after birth.

It has been
our privilege
to care for you and your child.



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