

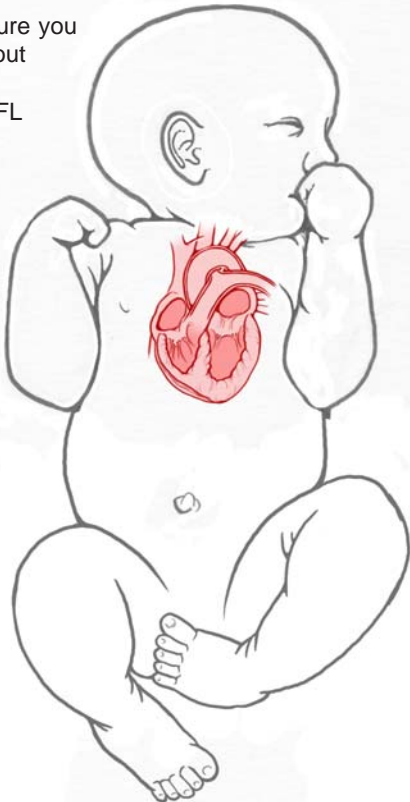
Left-sided Cardiac Flow Lesions (LCFL's)



Did you know that congenital heart defects are some of the most common birth defects? Because of advances in cardiac medication and surgery, almost one million Americans with a congenital heart defect are alive today, but many suffer serious health complications.

The most common type of congenital heart defects are left-sided cardiac flow lesions (LCFL's). They account for two-thirds of all cardiac anomalies. Affected individuals have obstructed blood flow out of the left side of the heart often causing disability or death.

In this brochure you will learn about some of the common LCFL defects.



For more information about LCFL's or other birth defects, please visit www.lucinafoundation.org.

The Lucina Foundation is devoted to enhancing the well-being of women and their families and to finding the cures for common diseases and complications affecting women's health, pregnancy, and childbirth through medical and scientific research.

Birth defects are one focus of our research and we believe genetic research is the key to diagnosing and possibly correcting a range of birth defects for generations to come.

The Lucina Foundation supports and operates an independent, medical research institute founded in 2005. The Lucina Foundation is an IRS-approved 501(c)(3) non-profit organization and donations to the Foundation are tax deductible.



LUCINA FOUNDATION

Our origins, tomorrow's cures.

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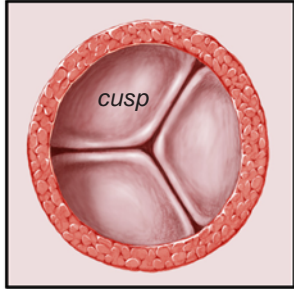


What
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Left-
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Cardiac
Flow
Lesions?

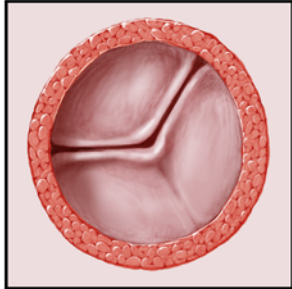
A patient guide to LCFL's

Bicuspid Aortic Valve

The aortic valve is normally comprised of three cusps. With a bicuspid aortic valve, there are only two cusps. By middle age the valve may become stiff and thickened resulting in a case of aortic stenosis (described later). Bicuspid aortic valve is the most common congenital heart defect, but the least life-threatening.



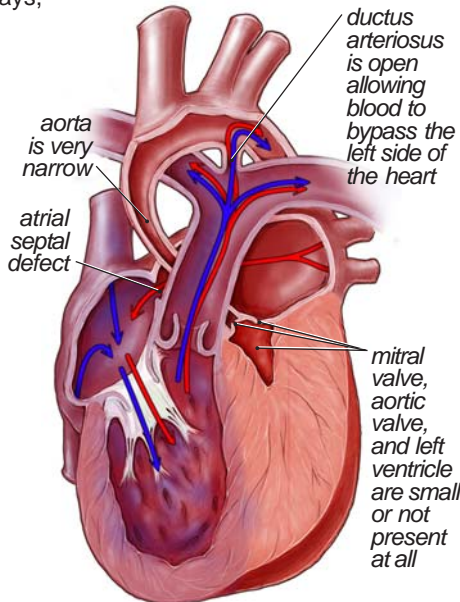
normal aortic valve with 3 cusps



abnormal aortic valve with 2 cusps

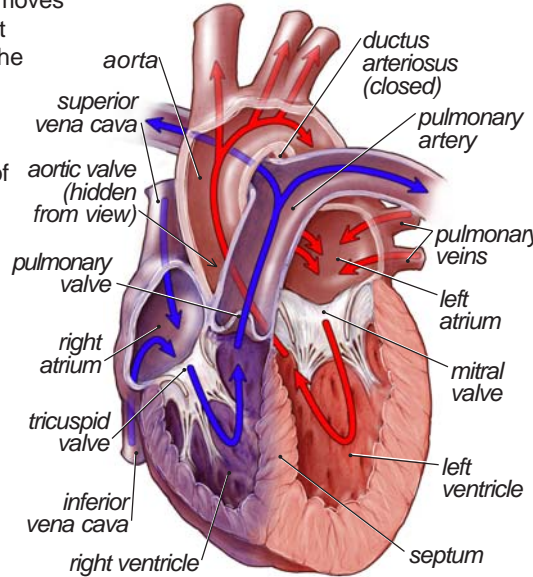
Hypoplastic Left Heart Syndrome

In this condition the structures on the left side of the heart, including the aorta, the aortic valve, the left ventricle, and the mitral valve are all underdeveloped. A defect in the atrial septal wall is also present. Because of a detour present in the fetal heart (*ductus arteriosus*) and the atrial septal defect, the baby will often seem normal at birth. But when the ductus arteriosus closes after a few days, the baby will quickly need medical attention. This defect is usually fatal within the first days or weeks of life if left untreated. A baby with this condition will need to undergo a series of surgeries or a heart transplant.



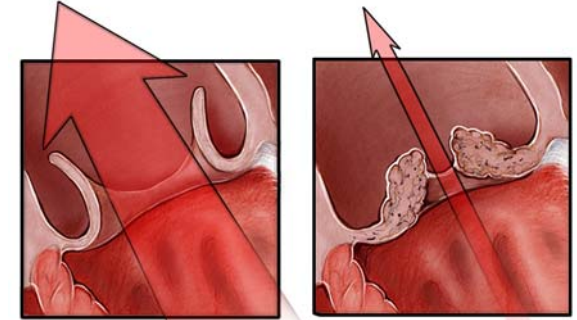
NORMAL HEART ANATOMY

In a healthy heart, blood from the body flows into the right atrium through the superior and inferior vena cava (*blue arrows*). It moves into the right ventricle and from here is pumped via the pulmonary artery into the lungs to pick up oxygen. Oxygenated blood (*red arrows*) then travels through the pulmonary veins into the left atrium. From here the blood moves into the left ventricle, the biggest, most muscular chamber of the heart. Blood then passes through the aortic valve to the aorta, the main vessel carrying blood to the rest of the body.



Aortic Stenosis

Normally the cusps of the aortic valve are thin and flexible. In aortic stenosis the cusps are thickened and stiff which narrow the opening, allowing less blood to pass into the aorta and causing the heart to work harder to pump blood to the body. Normally symptoms do not appear until after the teenage years; however, if the narrowing is severe, symptoms can occur in infancy. Surgery can temporarily enlarge the opening, but often the valve needs to be replaced with an artificial one.

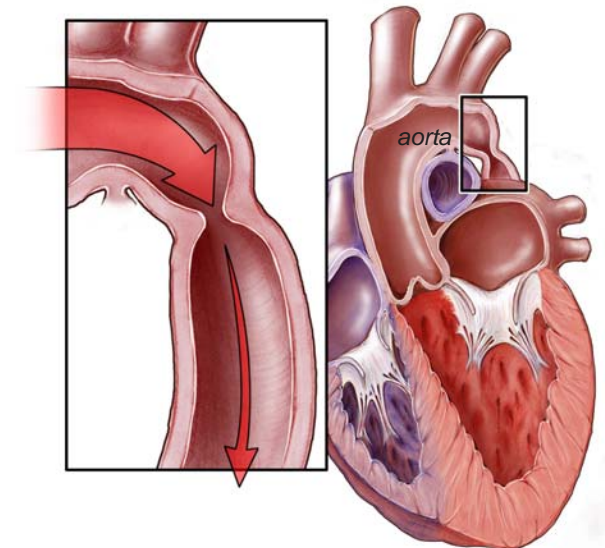


normal aortic valve in the open position

stenotic aortic valve

Coarctation of the Aorta

In this defect the aorta is constricted causing a decrease of blood flow. This also increases blood pressure and puts a strain on the heart. The aorta can be repaired through surgical or sometimes nonsurgical treatment during infancy. Sometimes the coarctation may return later in life.



Ventricular Septal Defect (Type II)

The ventricular septum is the wall that divides the right ventricle from the left ventricle. In this defect there is an abnormal opening in the wall that allows blood to be shunted between the two ventricles. If the defect is small, the only symptom may be a loud heart murmur. However, if the defect is large, congestive heart failure is a risk. With surgery the defect can be repaired.

