

HOLES :- CONGENITAL HEART DISEASE IN CHILDREN

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Abstract:- Congenital heart disease is a term used to signify birth defects that affect the normal functioning of heart. Some defects are small and cured by its own but some are large enough which need to be treated. These defects may be due to genetic or environmental factor. There are various type of congenital disorders, The main are ASD and VSD. These can be treated when diagnosed. These defects have lot of symptoms and sign in babies and children. Treating these congenital diseases usually depend on the defect the child has. Children with congenital heart disease sometimes need lifelong medical cure. It causes irregular heartbeat, Shortness of breath, Feeling tired very quickly with activity. Congenital heart disease can affect any part of heart including the arteries, Valves, Chambers and wall of tissues. Congenital heart defects happen during first eight weeks of baby development. Most of Congenital heart defects have no known cause.

Keywords: - Holes, Heart, Septum, Blood, Babies, Chamber, Ventricular.

Introduction:-

Holes in the heart are simple congenital heart defects. Congenital heart defects are problems with the heart's structure that are present at birth. These defects change the normal flow of blood through the heart. An atrial septal defect (ASD) is a hole in the wall (septum) between the two upper chambers of your heart (atria). The condition is present at birth (congenital). Small defects might be found by chance and never cause a problem. Many babies born with atrial septal defects have no signs or symptoms. The heart is divided into four chambers, two on the right and two on the left. To pump blood throughout the body, the heart uses its left and right sides for different tasks¹. The right side of the heart moves blood to the lungs. In the lungs, blood picks up oxygen then returns it to the heart's left side. The left side of the heart then pumps the blood through the aorta

and out to the rest of the body. Doctors know that heart defects present at birth (congenital) arise from errors early in the heart's development, but there's often no clear cause. Genetics and environmental factors might play a role¹.

There are several types of atrial septal defects, including:-

1. Secundum. This is the most common type of ASD and occurs in the middle of the wall between the atria (atrial septum).
2. Primum. This defect occurs in the lower part of the atrial septum and might occur with other congenital heart problems.
3. Sinus venosus. This rare defect usually occurs in the upper part of the atrial septum and is often associated with other congenital heart problems.
4. Coronary sinus. In this rare defect, part of the wall between the coronary sinus — which is part of the vein system of the heart — and the left atrium is missing¹. A ventricular septal defect (VSD) — sometimes referred to as a hole in the heart — is a type of congenital heart defect. In a VSD, there is an abnormal opening in the wall between the main pumping chambers of the heart (the ventricles). VSDs are the most common congenital heart defect, and in most cases they're diagnosed and treated successfully with few or no complications². The right and left ventricles of the heart are separated by shared wall, called the ventricular septum. Kids with a VSD have an opening in this wall. As a result:- When the heart beats, some of the blood in the left ventricle (which has been enriched by oxygen from the lungs) flows through the hole in the septum into the right ventricle. In the right ventricle, this oxygen-rich blood mixes with the oxygen-poor blood and goes back to the lungs. In some cases, the tendency to develop a VSD may be due to genetic syndromes that cause extra or missing pieces of chromosomes. Most VSDs, though, have no clear cause². A hole in the septum between the heart's two upper chambers is called an atrial septal defect (ASD). A hole in the septum between the heart's two lower chambers is called a ventricular septal defect (VSD)³. ASDs and VSDs allow blood to pass from the left side of the heart to the right side. This means that oxygen-rich blood can mix with oxygen-poor blood. As a result, some oxygen-rich blood is pumped to the lungs instead of out to the body.

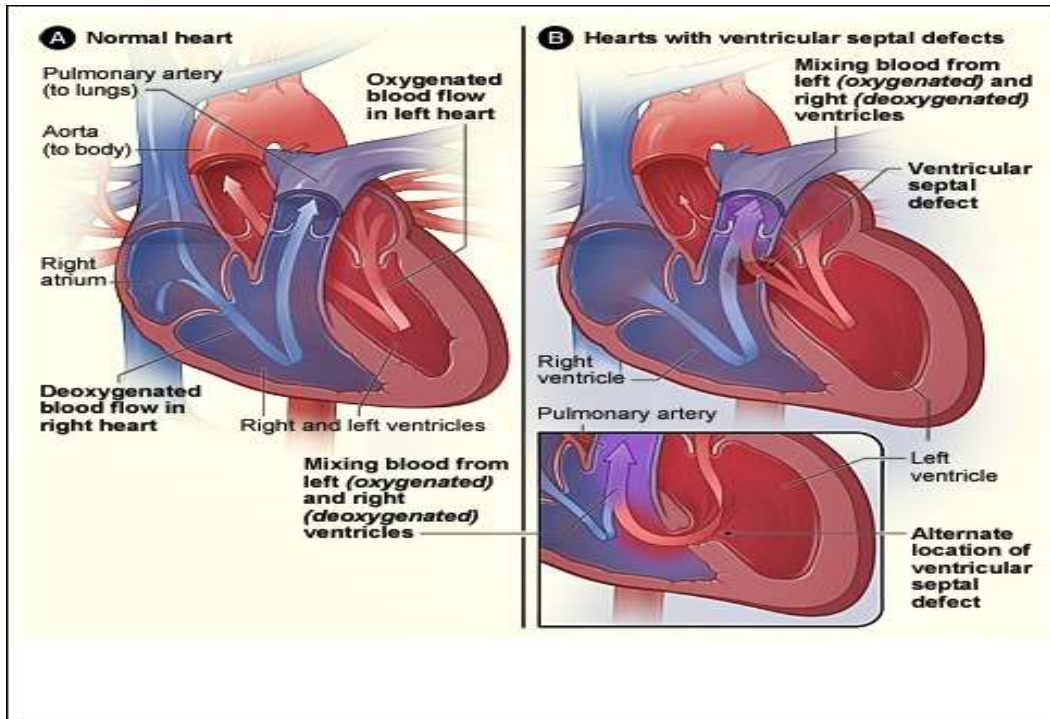


Fig: - Normal Heart and heart with defect

An infant who is born with a VSD may have a single hole or more than one hole in the wall that separates the two ventricles. The defect also may occur by itself or with other congenital heart defects. VSDs can be small or large³. Small VSDs don't cause problems and often may close on their own. Because small VSDs allow only a small amount of blood to flow between the ventricles, they're sometimes called restrictive VSDs. Small VSDs don't cause any symptoms. Mothers of children who are born with atrial septal defects (ASDs), ventricular septal defects (VSDs), or other types of heart defects often think that they did something wrong during the pregnancy to cause the problems. However, most of the time, doctors don't know why congenital heart defects develop. A heart murmur usually is present in ventricular septal defect (VSD), and it may be the first and only sign of this defect. Heart murmurs often are present right after birth in many infants. However, the murmurs may not be heard until the babies are 6 to 8 weeks old⁴.

Holes in the Heart Diagnosed: -

Doctors usually diagnose holes in the heart based on results from a physical exam and tests and procedures. The exam findings for an atrial septal defect (ASD) often aren't obvious, so the diagnosis sometimes isn't made until later childhood or even adulthood⁵. It is the most common heart problem that babies are born with. Many defects in the ventricular septum close themselves and cause no problems. Otherwise, medicines or surgery can help. Most babies born with a defect

in the septum have normal survival. About 8 babies in every 1,000 born will have a problem with their heart or major blood vessels. The problems depend on the size of the hole (defect). Small holes cause few or no symptoms. However, when babies have their checks with the doctor, a murmur may be noticed⁶⁻⁸. This is caused by the unusual blood flow in the heart. With slightly bigger holes, early symptoms may include sweating and becoming out of breath and tired quickly when feeding. Feeding is exercise for a baby and the extra effort needed brings out the symptoms. Not putting on weight is another warning sign and these babies also tend to have more chest infections than usual. These things usually start to happen between 4 and 6 weeks of age. If the opening is small, it doesn't make the heart and lungs work harder. Surgery and other treatments may not be needed. Small ASDs that are discovered in infants often close or narrow on their own⁹. There isn't any medicine that will make the ASD get smaller or close any faster than it might do naturally. If the ASD is large, it can be closed with open-heart surgery, or by cardiac catheterization using a device inserted into the opening to plug it. Sometimes, if the ASD is an unusual position within the heart, or if there are other heart defects such as abnormal connections of the veins bringing blood from the lungs back to the heart (pulmonary veins), the ASD can't be closed with the catheter technique¹⁰⁻¹³. Then surgery is needed. Closing a large ASD by open-heart surgery usually is done in early childhood, even in patients with few symptoms, to prevent complications later. Many defects can be sewn closed without using a patch¹⁴⁻¹⁵.

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