

Pulmonary Stenosis



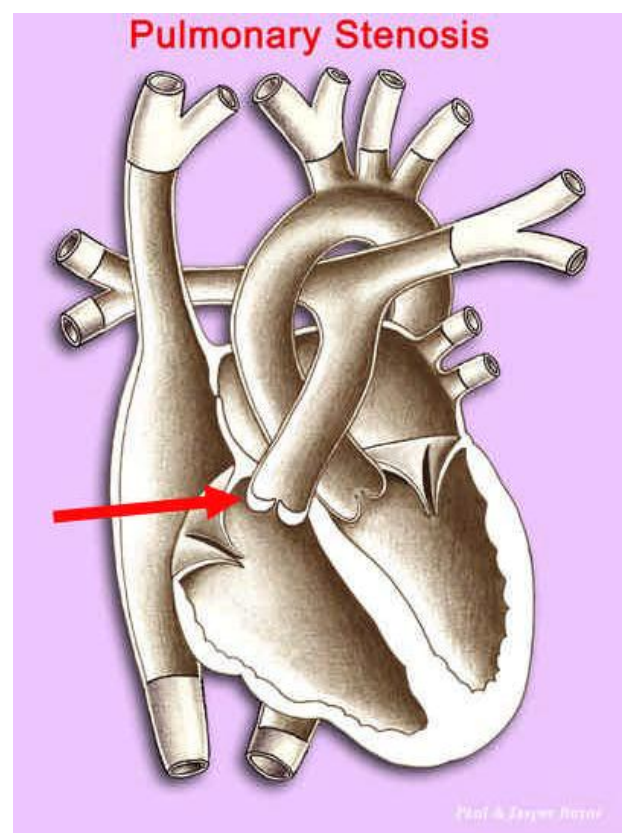
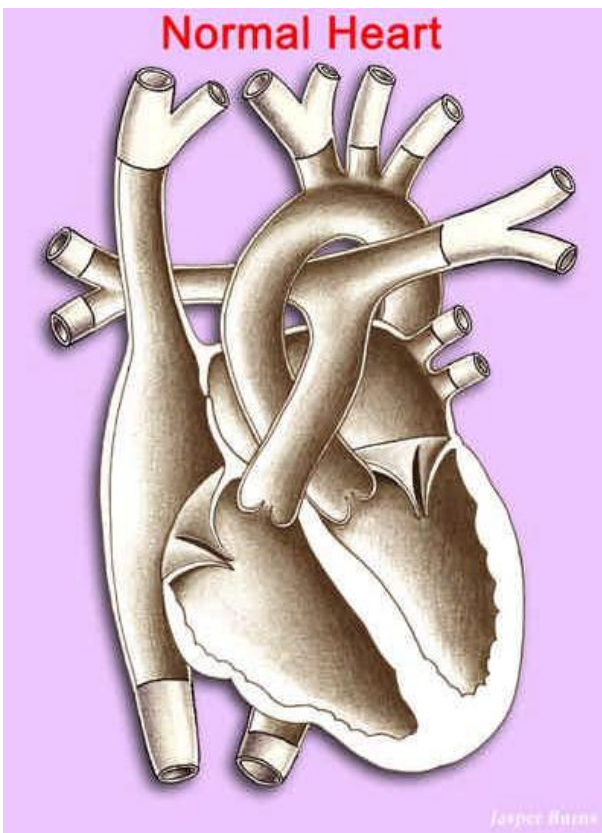
What Is It?

In this defect, the valve and/or outflow tract from the right ventricle into the pulmonary artery is obstructed.

Valvular pulmonary stenosis means that the leaflets, or "flaps," of the pulmonary valve are abnormal. They are often thickened and do not open fully, causing a narrowing where the blood crosses the valve from the right ventricle. When the valve leaflets close, they often leak, allowing some blood to flow back into the right ventricle.

In other cases, the pulmonary artery above the valve opening may be narrowed (supravalvular stenosis), or the part of the right ventricle that leads into the pulmonary valve may be narrow or obstructed by excess tissue (subvalvular, or infundibular, stenosis).

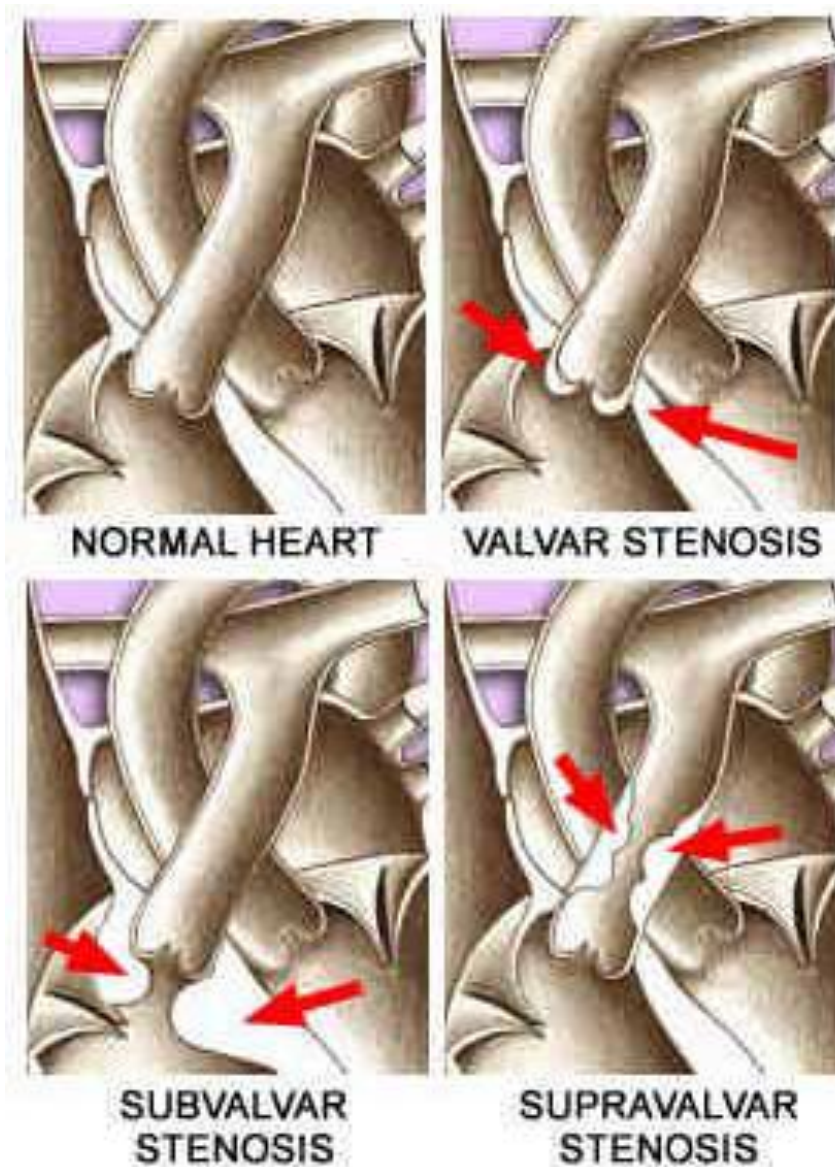
This is one of the more common congenital heart defects and occurs equally among boys and girls.



What Are Its Effects?

The narrowing of the pulmonary valve (red arrows in illustrations below) may cause the right ventricle to pump harder to move its supply of blood into the pulmonary artery. This increases the blood pressure in the right ventricle and may result in the thickening (hypertrophy) of its walls.

In extreme cases, the pulmonary stenosis may interfere with the proper functioning of the right ventricle and, in extreme cases, lead to right ventricular failure. The child with Pulmonary Stenosis usually shows no symptoms. Children with severe stenosis may breathe rapidly, feed poorly, and tire easily.



Normal Heart and Types of Pulmonary Stenosis

How Is It Treated?

The course of treatment for this disorder depends on the type of stenosis and the seriousness of the symptoms. Mild stenosis may require no intervention at all. More severe cases may be treated through a Balloon Valvuloplasty.

In this procedure, a catheter is inserted from a vein in the leg into the right ventricle. The catheter is then positioned at the point of narrowing in the outflow tract from the right ventricle into the pulmonary artery and a balloon is inflated on the catheter. As the balloon increases in size, it stretches the narrowed area and widens it. Then the balloon is deflated and the catheter is withdrawn.

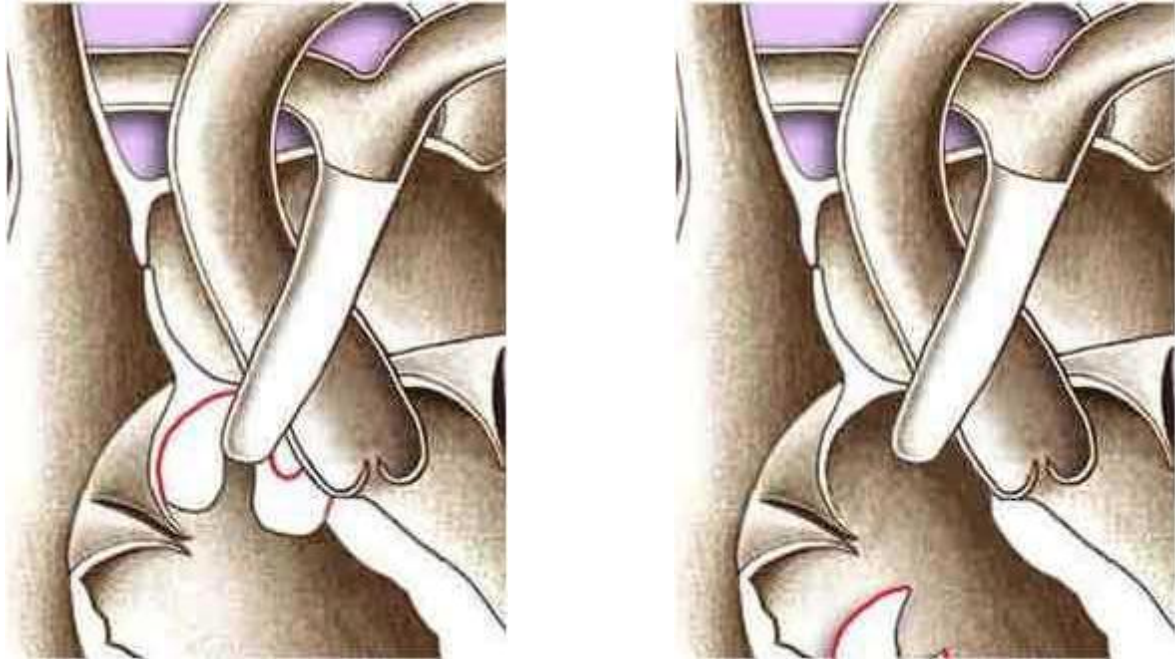
Occasionally, surgical repair of Pulmonary Stenosis may be required. If the obstruction is due to thickened muscle tissue below the pulmonary valve (subvalvar stenosis); it may be removed to widen the opening. (See illustration, below)

If the pulmonary valve is too small for surgical or balloon valvuloplasty, it may be widened by the insertion of a patch made of homograft material (human tissue that has been cold-stored).

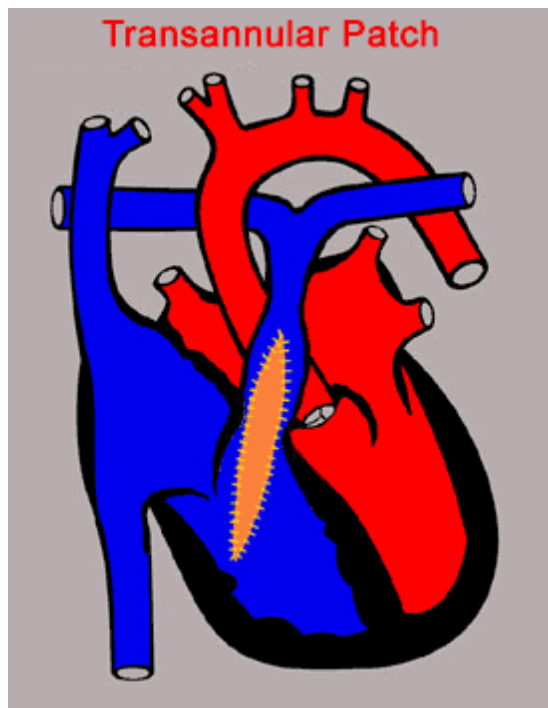
If a patch is inserted, it may be used to widen the pulmonary artery from the valve upward. However, if there is also a need to widen the outflow tract of the right ventricle, a transannular patch may be required (orange in the diagram at bottom right).

This patch covers part of the wall of the right ventricle as well as widening the pulmonary artery and pulmonary valve.

In all cases, care is taken to preserve the pulmonary valve and ensure its proper functioning. Patients who have a balloon valvuloplasty in the catheterization laboratory often go home the same day. Recovery from the repair operation for Pulmonary Stenosis is usually uncomplicated, requiring an average hospital stay of from 3 to 5 days.



Obstructing Tissue is Removed



Insertion of Transannular Patch (Orange) to Widen Pulmonary Artery

Surgical repair of Pulmonary Stenosis