

# Aortic Stenosis (AS)

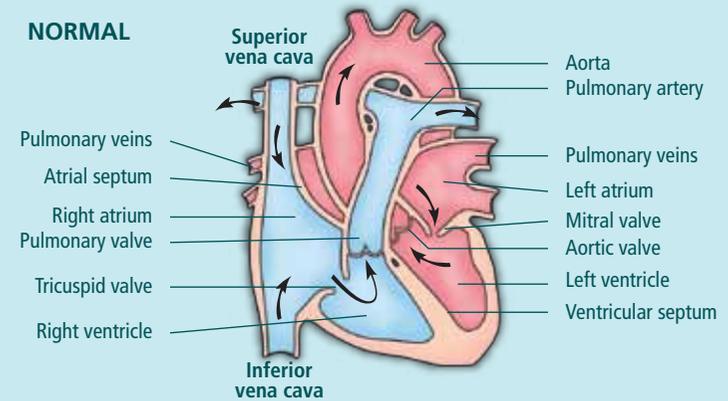
## WHAT IS IT AND HOW DOES IT AFFECT THE HEART?

The aortic valve opens to let blood flow from the left pumping chamber (left ventricle) to the main body artery (aorta).

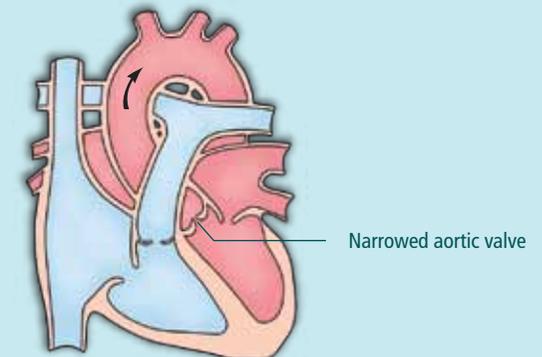
Aortic stenosis (AS) occurs when the aortic valve didn't form normally. A normal valve has three cusps, but a stenotic valve may have only one cusp (unicuspid) or two cusps (bicuspid), which are thick and stiff, rather than thin and flexible.

Stenosis (narrowing or obstruction) of the aortic valve restricts the blood flow from left pumping chamber to the aorta. The pressure is much higher than normal in the left pumping chamber (left ventricle) and the heart must work harder to pump blood out into the body arteries. Over time this can cause thickening (hypertrophy) and damage to the overworked left heart muscle.

### NORMAL



### AORTIC VALVE STENOSIS



## HOW WOULD AORTIC STENOSIS AFFECT MY CHILD?

The onset of symptoms depends on the severity of narrowing of the aortic valve.

If the obstruction is mild, the child will have no symptom apart from an audible murmur as there is no significant strain on the heart.

If the obstruction is severe, some of these children may still have no symptom as the heart is still coping at the early stage. At the later stage, the affected newborn or infant may present with heart failure or circulatory collapse. The older children may complain of chest pain, easily tired, dizziness or fainting spell.

## WHAT WILL HAPPEN TO MY CHILD IF UNTREATED?

The degree of obstruction may progress with time and sometimes it may be associated with leaky aortic valve (aortic regurgitation) especially if the aortic is abnormal i.e. bicuspid.

If the AS is mild with no associated leaky valve, your child will remain stable unless the severity has progress.

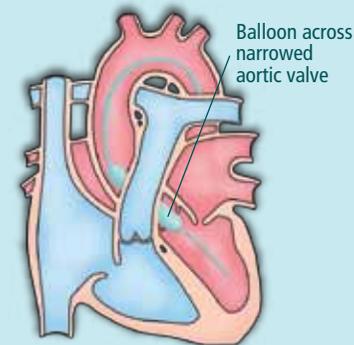
If the AS is severe, the pressure in the left pumping chamber is high and the heart must work harder to pump blood out into the body arteries. Over time this can cause thickening (hypertrophy) and damage to the overworked left heart muscle.

## HOW CAN IT BE TREATED?

The valve can be treated to improve the obstruction but the valve can't be made normal.

No intervention is needed if the aortic stenosis is mild.

Intervention is needed if the aortic stenosis is severe even though there may be no symptoms. The stenotic aortic valve could be opened up by using a balloon catheter or surgery.



## Transcatheter aortic balloon valvuloplasty

A catheter with a balloon at the tip is inserted through the artery at the groin and the balloon is placed across the aortic valve. The balloon is then inflated for a short time to stretch open the valve.

## Surgical aortic valvotomy

The operation involves a sternotomy, open heart surgery and enlargement of the aortic opening.

## WHAT WILL HAPPEN TO MY CHILD AFTER SURGERY OR PROCEDURE?

Some valve leakage may develop or increase after a balloon procedure or surgery for obstruction.

The aortic stenosis may also recur with time especially if the valve is abnormal.

If the aortic valve becomes severely stenotic again or has become severely insufficient (leaky), it will probably need to be replaced surgically.

Children with aortic stenosis need lifelong medical follow-up to look for problems such as worsening of the obstruction or leak.

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WHAT HAPPENS  
AFTER SURGERY?