

Ventricular Septal Defect

What is Ventricular Septal Defect?

Ventricular means 'of the ventricles' - the pumping chambers of the heart.

Septal means 'of the septum' – the wall between the right and left sides of the heart.

Defect means a hole.

So a VSD is a hole in the wall between the ventricles.

Because pressure is higher on the left side of the heart, some of the blood that should be pumped into the aorta leaks from the left ventricle into the right.

In a **small VSD** this will mean there is slightly more blood going to the lungs. This kind of hole usually closes over a period of time – sometimes not until adulthood. Small holes should not cause your child to be ill.

In a **large VSD**, or **multiple VSD's** this means that the right ventricle has to work harder pumping the extra blood at high pressure into the pulmonary artery and the lungs. The left ventricle is losing blood to the right, so it has to pump harder to get enough blood into the aorta for the body's needs. Altogether the heart and lungs have to do more work than usual.

The VSD may be one of two or more heart defects – in some cases the VSD is necessary for a circulation such as Pulmonary Atresia.

Fig 1 – VSD

VSD (Ventricular Septal Defect)

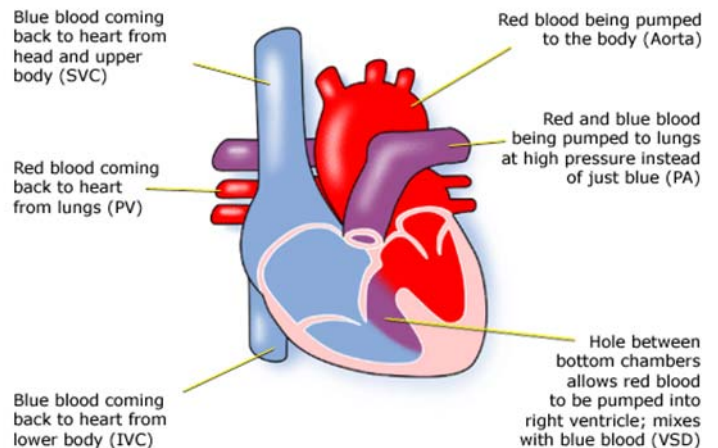
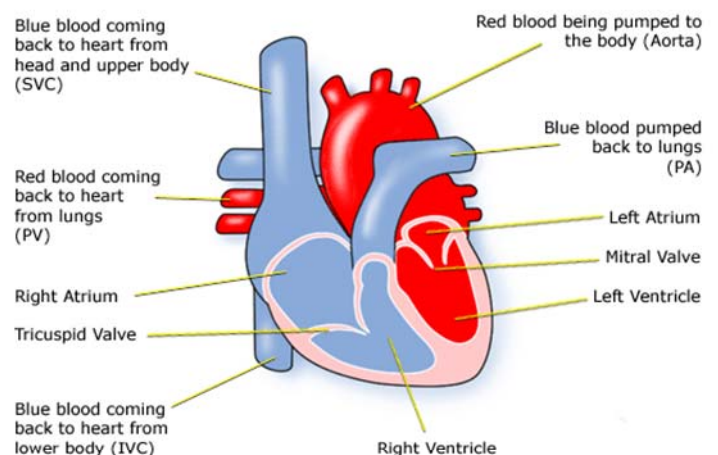


Fig 2 – Normal Heart

Normal Heart



Diagnosis

You may have had the VSD picked up in pregnancy on an ultrasound scan of the foetus.

If your baby has a large VSD, he or she

may be breathless, have problems feeding, be slow putting on weight and 'fail to thrive'. She or he may have frequent chest infections.

The sound of extra blood from a large or small VSD moving through the valve to the lungs can be heard as a heart murmur.

When a heart murmur is heard the tests used can be:

- pulse, blood pressure, temperature, and number of breaths a baby takes a minute.
- listening with a stethoscope for changes in the heart sounds.
- an oxygen saturation monitor to see how much oxygen is getting into the blood.
- a chest x-ray to see the size and position of the heart.
- an ECG (electrocardiogram) to check the electrical activity.
- an ultrasound scan (echocardiogram) to see how the blood moves through the heart.
- checks for chemical balance in blood and urine.
- a catheter or Magnetic resonance Imaging test may be needed.

At home

You may be at home while your baby grows stronger for surgery:

- You, your GP and Health Visitor should have details of your baby's condition from the heart doctor (paediatric cardiologist). If not, call the hospital at which your baby was treated, ask for the name of the paediatric cardiologist and their telephone number. Call and explain that you need the information to pass on to, for example, your local casualty Department should he or she have a sudden illness.
- You should have the number of a cardiac liaison nurse or outreach nurse to call should you have questions or

any fears about your baby's heart problem.

- You should have the number of a parent support group.

Treatment

In some cases the **VSD** will close over time and not need treatment – it will need to be monitored to make sure it is diminishing in size and not affecting the child's health in any way. Also it is important to ensure that there not any other associated defects in the heart as your child grows older.

If the heart is not coping with the extra work a VSD is causing, the baby is said to be in 'heart failure'. This can mean that the lungs and other organs become heavy with fluid ('wet'). Before surgery, your baby may need medicines to get rid of the extra fluid – diuretics or captopril.

This is open heart surgery – the heart will need to be stopped and opened to repair it. This means that a machine will have to take over the job that the heart normally does – the heart bypass machine.

The aim of the operation is to make the circulation of blood through the heart and lungs normal, so a patch is put over the hole between the ventricles.

For most children this surgery is low risk, but it can depend on how well your child is otherwise. The doctors will discuss risks with you in detail before asking you to consent to the operation.

The length of time in hospital will usually be only a week or so, of which one or two days will be spent in the ICU depending on how well the child is otherwise.

How the child is affected

No two heart defects are the same, so there cannot be guarantees of how well your child will do. If the hole is near a

valve, or there is any other problem in the heart, treatment can be more difficult, even if the VSD itself is quite small. It is not uncommon for a child to pick up an infection, such as a chest infection or infected wound, while undergoing treatment. And some children react badly to some kinds of medicines.

But most children are completely well, active, and gaining weight a few days after surgery. He or she will have a scar down the middle of the chest, and there may be small scars where drain tubes were used. These fade very rapidly in most children, but they will not go altogether. Smaller scars on the hands and neck usually fade away to nothing.

After the first year, the child will be monitored infrequently by a cardiologist.

Some of these problems can occur after surgery or later in life:

- A small amount of blood may still 'shunt' from left to right where the VSD is not completely closed. This should close by itself eventually.
- The aortic valve may leak because of the abnormal blood flow and may need repair at a later date.
- Hearts that are not normal are more likely to have an infection called endocarditis. Although rare this is a difficult disease to treat. People born with a VSD will need to take antibiotics if there is a chance that a large number of bacteria will get into the blood stream. The most common way for this to happen is during ear-piercing or tattooing, or surgery or a dental procedure such as de-scaling of teeth or an extraction.

These problems may not become serious until the teen years or adulthood.

Parent's Stories

Poppy

I had heard of a hole in the heart, but I'd always thought it was a little hole – like a pin prick. And I knew nothing about the heart at all, apart from what I vaguely remembered from school science. When I was pregnant I was told that our baby had a heart problem, a VSD, and that it could be repaired. We were also told that about a quarter of children with heart defects have other problems – like learning difficulties, or bad behaviour, or getting a lot of infections.

We decided not to have our little girl tested before she was born – although I thought she might be quite frightening when I first set eyes on her! I read up lots about VSDs and met some parents whose children had had an operation.

Poppy's VSD was very big – she had to stay in hospital for six weeks while they tried to get her to put on weight. She wouldn't breastfeed, but I was allowed to express the milk and put it down her ng tube, so it was the next best thing. I was upset that they had to give her other food as well as she needed lots of calories. It was not being able to feed her that was most upsetting, I think. That and the operation day – I was frightened and angry. I was rude to everyone who came near me, and broke my heart when I had to leave her outside the operating theatre.

She sailed through, and was at home at last three weeks later.

At nearly a year – well, she still doesn't feed and has to be tube fed. She's a bit late on her milestones, her sight is not too good, but her hearing is excellent. She can sit up now, and has a famous grin.

Altogether a super little girl, and we are so grateful that the surgery saved her life.

Andrey

Well, this is what we told Andrey:

Your heart had a leak inside it. It was having to work very hard to pump blood around your body – when it tried to pump blood into the pipes, a lot of the blood just squirted into the other side of your heart.

This made you very tired. You had to breathe very fast to try and get as much air as possible into your blood, and this made it difficult to eat.

The doctor said he would patch the hole up. To do that he had to give you medicine so you would stay asleep. Then he made a space in your chest so that he could patch up the hole inside your heart.

When you were all sewn up again, you were allowed to wake up. To help you get better very quickly there was a big tube

going down your throat to help you to breathe. You couldn't say anything at all.

You had a shiny tube going into your tummy – this was to drain away water and blood that got caught inside you. You had a tube going into your penis – so you didn't have to go to the toilet or wet your nappy. There was another tube going into your wrist – this was so that you could have medicine put inside you without lots of injections. And you had a tube going into your neck – this was so that the nurses could take some blood without having to use lots of needles.

You can't remember having the horrible tubes. But you do remember being taken back to the ward on your big bed, with a well heart and at the beginning of your new life.

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