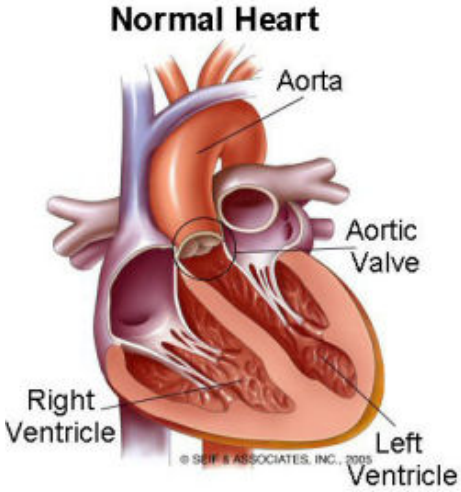
Double Outlet Right Ventricle
Pre-op and Procedure

A child with double outlet right ventricle (DORV) always needs surgery to repair the heart.



In a normal heart, there are two main blood vessels. The pulmonary artery brings blood to the lungs. The aorta brings blood to the body. In normal hearts, these two blood vessels are connected to two separate pumping chambers. In DORV they both are connected to the same chamber.

The type of surgery can vary depending on the rest of the anatomy of the heart. Some children only need one surgery. Some need multiple surgeries throughout infancy and childhood.

BEFORE THE SURGERY

- A medical evaluation is needed. This may include:
  - Physical examination by a heart doctor (*cardiologist*) and surgeon.
  - Chest x-ray – this will check the baby's heart size and shape and show how much blood is flowing to the lungs.
  - EKG – this checks the heart's electric circuit and looks for disturbances in heart rhythm (*arrhythmia*).
  - Echocardiogram – this is an ultrasound of the heart that will show all of the heart structures and how the blood flows in the heart. There is no radiation in an echocardiogram.
  - Cardiac catheterization – a cardiologist may use a catheter (a long IV that can go inside of the heart) to check oxygen level and blood pressure in all the parts of the heart. The baby will be asleep during this procedure. A cardiac catheterization does have radiation, as this is continuous x-ray.
- You will have to meet with multiple physicians prior to the surgery. These include:
  - Your baby's cardiologist.
  - The baby's heart surgeon.
  - The anesthesiologist.
  - Social worker, who can help arrange for special equipment and supportive care that the baby may need after surgery.
- Often, the baby will require a blood transfusion during and even after surgery. Family members can donate blood for the surgery if you want this. You must express this wish to the surgeon.
- The child's parent or legal guardian must give informed consent to both the surgeon and the anesthesiologist. This is a legal document that gives permission for the surgery. To give informed consent:
  - You must understand how the procedure is done and why.
  - You must be told all the risks and benefits of the procedure.
  - You must sign the consent form.
  - Signing should be witnessed by a healthcare professional.

ON THE DAY OF SURGERY

- The child must not eat or drink anything for at least 8 hours before surgery. Usually it is acceptable to give medications with a small amount of water.
- If the child is already in the hospital, an IV will be placed the night before surgery, and fluids may be given.
- If you are coming from home, be sure to arrive two hours before the scheduled surgery so that you can fill out paperwork and address problems that might arise.
- The hospital stay may be as short as a few days or last longer than a week. Make plans for someone to stay overnight, if possible every night of the hospitalization.

LET THE MEDICAL TEAM KNOW ABOUT

- Any allergies to medication or food.
- All medications, including over the counter and herbal medicines.
- Any problems with anesthesia, both in the child and in family members.
- Any history of blood clots or bleeding disorders.
- All prior surgeries and procedures.
- Any other medical problems.

THE SURGERY

As every heart is unique, it is difficult to predict every surgery for every baby. Be sure to speak openly with your surgeon so that you understand what surgery your baby is having.

Preparation for surgery:

- In the preoperative area, your child will have an IV placed.
- The child may receive a sedative prior to entering the operating room to help them relax.
- Once in the operating room, your child will be put under anesthesia (deep sleep and pain medicine). Once under anesthesia, your child will be put on a breathing machine (*ventilator*). A tube will be placed into the windpipe so that breathing can be controlled during surgery.
- More IV lines will be placed, including central lines. These are larger IV's in larger veins or arteries that give the surgeon and anesthesiologist the most accurate measurement of blood pressure in the arteries and veins.
- A nasogastric tube is a small tube that goes from the nose down to the stomach.
- Your child will also have a Foley catheter placed to drain urine from the bladder during surgery. These may or may not stay in after surgery.
- The surgeon may also use a transesophageal echocardiogram. This is an ultrasound similar to the echocardiograms your baby has already had, but the probe is in the esophagus instead of on the chest. This gives the surgeon more accurate pictures of the heart before surgery.

During the surgery:

- An incision is made. Most commonly, the incision is through the breast bone, but depending on the surgery the incision may be under the arm.
- The child may be connected to a heart lung bypass machine. This supplies the body with oxygen while the heart is having surgery.
- When the repairs are done, the child will be taken off the heart-lung bypass machine. The heart may require medicine to help it beat well, and this will be given via the central lines that were placed before surgery.
- The surgeon will put chest tubes in, small clear tubes that drain excess fluid and air from the chest.
- Your child may have temporary electrical wires placed to ensure that the heart's electricity is normal.
- The incision will be closed and a bandage will be placed over it.

AFTER SURGERY

Your child will be brought to the intensive care unit to recover after surgery. Depending on your hospital, this may be a:

- Specialized cardiac intensive care unit.
- Neonatal intensive care unit (NICU).
- Pediatric intensive care unit (PICU).

Many of the tubes and wires placed during surgery will be left in place during the first few hours to days of recovery. The child may still be on a ventilator and may need IV blood pressure medicine. Your child will be attached to several monitors that check their breathing, heart rate, and blood pressures.

While in the ICU, the child will have multiple X-rays to check the heart and lungs, as well as frequent blood tests. As the child recovers, they will require less and less monitoring. Tubes will be removed, and the child will be taken off of the ventilator to breathe on their own.

The amount of time spent in the hospital after surgery depends on which surgery was performed. Some patients

can be discharged within 2-3 days. Others require a longer hospital stay that could last weeks. You should discuss the expectations with the surgeon before the operation, so that you know what to expect.

RISKS AND COMPLICATIONS

Heart surgery is complicated and has serious risks. These risks include bleeding, infection, damage to the nerves or muscles in the chest, damage to the electrical system in the heart, strokes and blood clots. If your child's surgery includes a heart-lung bypass machine, there is an increased risk of bleeding in the brain and difficulties with blood pressure. All surgeries have a risk of death.

PROGNOSIS

DORV has multiple possible surgeries and multiple possible outcomes. With advances in medicine and surgery, most children have good outcomes and can look forward to a good quality of life. Always keep the lines of communication open with your child’s heart doctor and surgeon so that you know what to expect with your baby.

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