Malrotation and volvulus

Neonatal surgery

Patient information

What is malrotation?
Malrotation is an abnormality of the bowel, which occurs during pregnancy. In early pregnancy, the bowel is a long straight tube leading from the stomach to the rectum. The bowel then moves into the umbilical cord temporarily while it develops into the large and small bowel.

Around the tenth week of pregnancy, the bowel moves back into the abdomen and by 12 weeks the bowel should have rotation, and fixation takes place. If the bowel does not rotate into the correct position, this is called malrotation. We do not know exactly what causes malrotation and volvulus, but it is not due to anything that happens during pregnancy.

Malrotation affects about one in every 2,500 to 3,000 babies, and boys and girls in equal numbers.

Why is malrotation a concern?
In normal rotation and fixation of the bowel there is plenty of room for the bowel to function normally. In malrotation the concern is if the bowel becomes volvulus or twists and causes an obstruction.

What is volvulus?
Volvulus is a complication of malrotation and occurs when the bowel twists so the blood supply to that part of the bowel is cut off.

How is malrotation diagnosed?
The major symptoms of malrotation are bilious (green fluid) vomiting, abdominal distension and abdominal pain. Sometimes, malrotation may not have any symptoms.

An x-ray of the abdomen is taken. After this, a more detailed x-ray is performed where the baby swallows a special dye so the doctor can see the position of the bowel and whether or not it is twisted.
How are they treated?

Malrotation and volvulus are treated as an emergency operation under general anaesthetic, as the bowel can die from lack of blood-supply, which would stop it functioning properly and can also lead to problems with infection. There are no alternatives to the operation.

What happens before the operation?

Your baby will need a ‘drip’ (a small cannula in a vein) for IV fluids and a naso-gastric tube (NG tube), which is passed up the nose into the stomach to drain the bile and the air out of their stomach. This will make your baby feel more comfortable.

What does the operation involve?

The operation is called a Ladd procedure. The surgeon will straighten out the twisted bowel. If the bowel looks healthy, the surgeon will coil it back into the abdomen. Usually the surgeon will also remove the appendix during this operation, as it is often on the wrong side of the body in malrotation and could cause problems in diagnosing appendicitis later in life.

The surgeon will remove any parts of the bowel where tissue has died. The amount of bowel removed can vary, but the surgeon will leave as much of the bowel as possible. If the surgeon has to remove a large part of the intestine, he or she may need to create an artificial way of disposing of waste matter, called a ‘stoma’.

What happens after the operation?

Your baby will come back to the neonatal unit on a ventilator to help them breathe. The nurses will give pain-relieving medicines to your baby so that they are comfortable. During this time your baby will need drip feeds Parenteral Nutrition (PN) through a long line. A long line is a special type of drip that is placed in a small vein in an arm or leg and feeds into larger veins, which allows the drip to last longer.

After a few days and when the amounts of bile have reduced your baby can start small amounts of milk, increasing slowly each day as he or she tolerates it. If you wish to breast feed, the nursing staff will teach you how to express and store your milk to feed to your baby when they are ready.

Your baby will be able to go home once he or she is feeding well and starting to gain weight.

Long-term and follow-up

Following discharge from the neonatal unit, there will be regular check-ups to monitor your baby’s progress. Your baby will be seen in the outpatient’s department, which may take place at your local hospital. Your baby should be able to feed and wean normally.
If St George’s Hospital is not your local hospital

Once your baby has had surgery and made a good recovery, i.e. when their specialist medical and nursing requirements are less, the baby will be transferred back to the care of your local hospital. This transfer is a sign of progress and will not occur until the baby is ready. It will allow you to be closer to home and become familiar with your local healthcare professionals.