As soon as your baby is born he/she will be handed to the paediatrician who will start treatment. This involves placing a tube into the windpipe to help with breathing and giving oxygen. Your baby will be transferred quickly from the Delivery Suite to the Neonatal Intensive Care Unit for stabilisation. We routinely sedate babies with a CDH very deeply because this helps us to take over their breathing with a machine called a ventilator and also because it means that the baby is in no distress.

The first 48-72 hours of life are critical. During this period we establish how well the baby's lungs have developed. If the baby's lungs are well developed then ventilation is easy and it is easy to maintain a normal level of oxygen in the blood. We may wait for 2-4 days before operating to repair the diaphragmatic hernia even if the baby seems to be fine at birth because most babies deteriorate temporarily after surgery.

Surgery to repair a diaphragmatic hernia is performed under a general anaesthetic in the operating theatre. An incision is made 2-3 inches long to the left of the umbilicus (belly button).
The hole in the diaphragm is identified and the bowel drawn out of the chest. The defect in the diaphragm is closed either with sutures or sometimes with a patch of surgical Gore-Tex.

Most babies stay in hospital for about a month after repair of a CDH. After they come off the ventilator they are usually quite breathless for a couple of weeks and tend to need feeding through a tube. We encourage mothers to express their milk after they have recovered from the delivery and freeze it so that we can use it to start feeding their baby.

For more information please contact your local NZMFMN Unit

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Diaphragmatic Hernia

New Zealand Maternal Fetal Medicine Network

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What is a Diaphragmatic Hernia?

The diaphragm is a sheet of muscle which separates the chest (which contains the heart and lungs) from the abdomen (which contain the liver, kidneys and bowel). A congenital diaphragmatic hernia (CDH) is a defect or hole in this muscle.

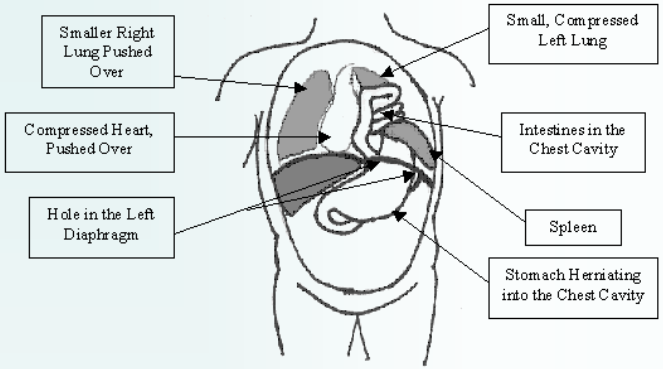
CDH affects about one baby in 2,500. Each year we see 15-20 babies with a CDH. During very early development the sheets of muscle which form the diaphragm grow in from the chest wall and meet in the middle. At the same time as the diaphragm is developing the lungs are starting to form. The precise cause of a diaphragmatic hernia is not known. However, we do know that whatever causes the CDH also disturbs lung growth.

The majority of diaphragmatic hernias occur on the left side. Rarely the CDH's are right sided or occasionally central. Bowel herniates through the hole in the diaphragm from the abdomen into the chest.

Most congenital diaphragmatic hernias can be diagnosed before birth using an ultrasound scan. When there is a diaphragmatic hernia the fetal stomach is seen in the chest rather than in the abdomen. Despite careful scanning some diaphragmatic hernias are not picked up until late in the pregnancy or even after birth.

How will this affect my baby and the rest of my pregnancy?

Congenital diaphragmatic hernia may an isolated problem or it may occur with other abnormalities. Because of this we do a detailed ultrasound scan to look for other structural problems, although not all of these can be identified before birth. We also recommend a detailed scan of your baby's heart (fetal echocardiography).



In some babies, especially if we find other anomalies, the CDH is part of an underlying problem with the baby's chromosomes and we offer a diagnostic test to see if the chromosomes are normal. Chromosome anomalies affect about 1 in 10 babies with a CDH. Lung development is abnormal in babies with a congenital diaphragmatic hernia. This is called pulmonary hypoplasia. This is a medical term for very small lungs. Because of pulmonary hypoplasia a substantial number of babies with CDH do not survive more than a few days after birth. Pulmonary hypertension is also a serious consequence. It occurs due to lung vessels developing in a way that makes the lung stiff. There is some recent evidence that heart development may also be affected. In general terms, the earlier in the pregnancy the CDH is identified, the more severe the pulmonary hypoplasia and the higher the chance of the baby dying. If the CDH is found before 25 weeks gestation the chance of survival is about 40%, which means that only 4 out of 10 babies will survive. If the CDH is on the right side of the chest the outlook for the baby is considerably worse, although this is rare.

The presence of other abnormalities in the baby, whether physical abnormalities such as a heart defect, or a chromosomal abnormality is almost always associated with a very poor outcome with over 90% of these babies dying. Mortality from CDH has been difficult to determine. Some babies may die in the womb or soon after birth. 10% of infants with CDH may have an underlying syndrome, such as Cornelia de Lange and Fryn's syndrome.

At present there is no 100% reliable test which will predict which babies with a diaphragmatic hernia will survive and which babies will not we have not. This leaves you with the very difficult decision whether to continue with the pregnancy or whether to consider a termination. If you decide to continue with the pregnancy we will monitor your baby's growth with regular scans. We will make you an appointment to meet one of the paediatric surgeons and/or a neonatologist to discuss your baby's treatment after birth.

We can also show you around the neonatal unit. Normally we expect mothers carrying babies with a CDH to go into labour at around the time the baby is due. A normal vaginal delivery is best and there is no advantage to either you or your baby in delivery by caesarean section. Sometimes a build up of amniotic fluid (polyhydramnios) occurs which can put you a risk of premature delivery if severe. We prefer to perform some of these scans in the Fetal Medicine Unit.

We also recommend that your baby is born at a hospital with a neonatal surgical unit. Your baby will need intensive care as soon as he/she is born and, if stable, an operation to repair the diaphragmatic hernia.

What will happen to my baby after delivery?

A paediatrician will be present at the delivery along with a neonatal nurse.