


Patent ductus arteriosus (PDA)

A close-up photograph of a newborn baby's face, sleeping peacefully with eyes closed. The baby is wrapped in a white, fluffy blanket. The background is a soft, out-of-focus grey.

Information for families

Great Ormond Street Hospital for Children
NHS Foundation Trust

This information sheet explains about the congenital (present at birth) heart condition called patent ductus arteriosus (PDA). An alternative name for the condition is persistent ductus arteriosus. This information sheet gives details about how it can be treated and what to expect when your child comes to Great Ormond Street Hospital (GOSH).

Figure 1: Patent ductus arteriosus

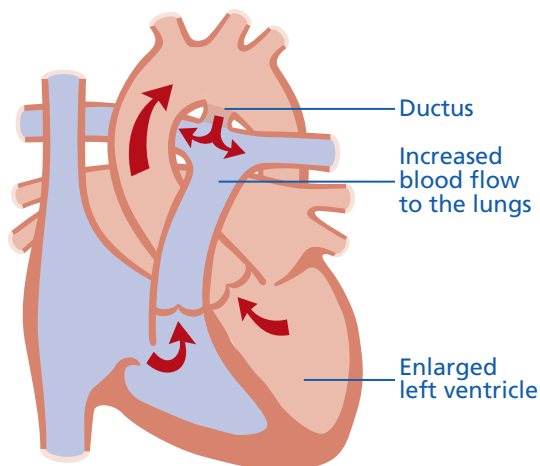
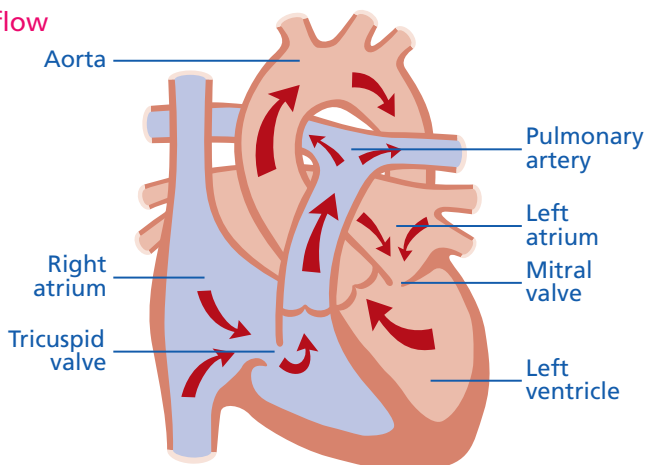


Figure 2: Normal bloodflow through the heart



What is a patent ductus arteriosus?

The ductus arteriosus is a blood vessel that connects the pulmonary artery (main vessel supplying the blood to the lungs) to the aorta (main vessel supplying the blood to the body). This connection is present in all babies in the womb, but should close shortly after birth. In some babies, especially in those born prematurely, this vessel may remain open. This is called a patent or persistent ductus arteriosus.

Why does my baby have a ductus arteriosus?

In the womb, the mother's placenta provides oxygen for the baby and the ductus arteriosus allows blood to bypass the lungs. After birth, your baby must use their lungs to take in oxygen and get rid of carbon dioxide. To achieve this, the blood flows to the lungs and the ductus arteriosus closes.

The ductus arteriosus normally closes shortly after birth. However in some babies, especially premature babies, it can remain open or even reopen.

How will it be detected?

A heart murmur will be heard by the doctor examining your baby.

The team looking after your baby may have suspected a PDA as your baby had difficulty coming off the ventilator or CPAP machine. Your baby will then have had an echocardiogram to confirm the diagnosis.

What happens if this blood vessel stays open?

A patent ductus arteriosus increases the blood flow to the lungs. This can make it harder for your baby to breathe and come off the ventilator. The heart also has to work harder to pump blood around the body, which can lead to heart failure (which is completely reversible). Many babies with a PDA will have been kept on reduced fluid intake and given diuretic medicines to try to treat fluid overload caused by heart failure.

To try to close the connection your baby may have been given medication (often a non-steroidal anti-inflammatory drug such as ibuprofen). Sometimes medication is unsuccessful or not appropriate and a surgical closure might be needed.

How is a patent ductus arteriosus surgically repaired?

Patent ductus arteriosus is surgically closed in an operation under general anaesthetic.

What happens before the operation?

Your baby will be moved to the Neonatal Intensive Care Unit (NICU) at GOSH by a neonatal transport team. Accommodation can be provided for parents during your baby's stay on the NICU.

Your baby will continue to receive the care they need in NICU. To assess your child, various tests will be performed:

- Chest x-ray
- Echocardiogram
- Blood tests

The surgeon will explain about the operation in more detail, discuss any questions you may have and ask you to sign a consent form giving permission for your child to have the operation.

We will ask that all parents leave the unit when the operation is in progress.

What does the operation involve?

The operation is usually carried out in NICU while your baby is under general anaesthetic by a cardiothoracic surgeon and anaesthetist. If this is not appropriate and your baby needs to leave the unit to go to the operating theatre we will discuss the reasons with you.

During the operation the surgeon will make a small cut underneath the baby's left armpit, in between the ribs. A metal clip or suture is placed around the PDA closing it and the wound closed.

The operation usually takes around one hour.

Are there any risks?

All operations carry a small risk which will be fully explained by the cardiothoracic surgeon taking consent. In general, the main risks include bleeding, infection, chylothorax (build up in the chest cavity of chyle, a milky fluid that is made when the body digests fat) and pneumothorax (air in chest cavity). There is also a small chance that the lung could be damaged when it is moved aside to attach the clip to the PDA. Other rare risks include damage to the nerves in the larynx (voicebox) which may last for a while. As with any surgical procedure, there is a very rare risk of death.

What happens afterwards?

You will be able to visit your baby as soon as the surgery has finished. Your baby will continue to need help with breathing so will remain connected to a ventilator. We will give your baby medicines to ensure they are comfortable and free from pain.

Occasionally there may be a tube (chest drain) inserted. If your baby requires a chest drain we will explain this to you.

To assess your baby's progress after the operation, we will repeat some tests as carried out previously:

- Chest x-ray
- Echocardiogram
- Blood tests

Your baby will be transferred back to your local unit by a neonatal transport team as soon as we are satisfied with their recovery. This can be the same day as surgery. Some babies need a little longer to recover so we will only arrange transfer when we know it will be safe.

Your baby will not usually need a follow up appointment by the cardiologists or cardiac surgeons at GOSH.

Progress back on local NICU

While some babies take a little time to recover from the PDA closure, most recover quickly. Some babies may need more help from the breathing machine for a few days as their left lung is moved out of the way during the operation so will need time to recover. Generally after the duct closure your baby's breathing, tolerance of feeds and growth will increase.

Is there a support group?

There is no specific support group for PDA but the following organisations may be able to help:

Bliss is the support group for babies born too soon (prematurely) or who are unwell soon after birth. Call their helpline on 0500 618 140 or visit their website at www.bliss.org.uk

British Heart Foundation offers support and advice to anyone affected by a heart condition. Call their helpline on 0300 330 3311 or visit their website at www.bhf.org.uk

Contact a Family is the umbrella organisation of most support organisations in the UK. Call their helpline on 0808 808 3555 or visit their website at www.cafamily.org.uk

If you have any questions, please talk to
the Family Liaison Nurses on NICU at GOSH

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