

## Directorate of Cardiothoracic Services

# Percutaneous atrial septal defect closure

## Introduction

This leaflet is to guide you through your procedure and hospital stay while having a percutaneous atrial septal defect closure. A percutaneous device closure is an procedure carried out through the vein at the top of the leg to get to the heart (sometimes called key hole surgery). Different procedures exist to close atrial septal defects including open operations carried out through the chest, but percutaneous closure is the easiest option not involving open heart surgery. If you need open heart surgery we will give you different information.

## What is an atrial septal defect (ASD)?

An ASD is a defect or an opening between the upper two chambers of the heart. These chambers are called the atria and collect the blood returning from the body and lungs. If you have an ASD the blood does not flow correctly, and this can lead to the collecting chambers (atria) and right sided pumping chamber (ventricle) being stretched. Over time this can lead to heart failure, irregular heartbeats and an increase in the pressure of the blood going into the lungs.

## Can my ASD be closed with a catheter?

Your cardiologist will decide whether the ASD can be closed using a catheter or if open heart surgery is needed. The decision is based on the size of the defect and where it is. It is technically difficult to close certain ASDs using a catheter procedure.

## The procedure

The procedure normally takes about an hour and is performed under general anaesthetic, which means you will be unconscious (asleep) when it takes place. Occasionally a local anaesthetic will be used to numb the groin rather than using general anaesthetic, which means you would be awake during the procedure.

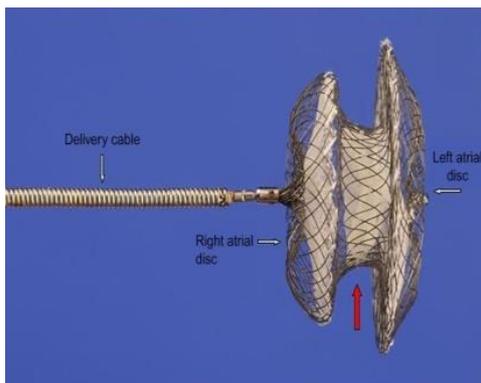
The percutaneous closure of the ASD is performed using a specific closure device designed for the procedure. The device is attached to a cable and folded into a catheter (thin flexible plastic tube). The catheter is inserted into a vein in the leg and fed into the heart and through the septal defect. We use x-rays and an echo probe placed in your throat to make sure the device is in the correct position. The device is slowly pushed out of the catheter allowing the device to open up and cover each side of the hole (like a sandwich), closing the hole or defect. Over time, heart tissue grows over the implant, becoming part of the heart.

## Closure device

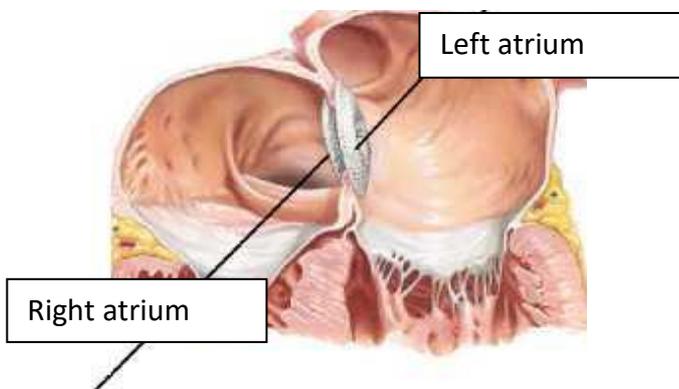
- 1) This is how the closure device will look on the end of the catheter.



- 2) This is what the device will look like when your doctor places it into the ASD to seal the defect.



- 3) This is what the device looks like when its in position in your atria.



## Benefits of this procedure

- It is minimally invasive – you will not have a scar on your chest
- A quicker recovery time – you will be able to go home the same or next day
- Open heart surgery can be avoided so you won't have to stay in intensive care stay, be on a heart lung bypass machine, have a scar on your chest or take a long time to recover from the surgery.

## Are there any after-effects from the procedure?

In certain cases people can suffer side effects after their procedure:

- Headaches or migraines
- Irregular heart rhythms can sometimes be felt afterwards

These should settle down over time. Please inform your cardiologist if these or any other symptoms occur in the days or weeks following your procedure.

Occasionally your medicines can cause side-effects; the information leaflet supplied with your tablets will tell you about these, and you should read this carefully. Please talk to your doctor, pharmacist or nurse if you are concerned about any side-effects.

## What are the risks?

We may be unable to repair the hole in the way described above. If the ultrasound probe we put down your throat at the start of the procedure shows that the hole is not suitable for device closure because of its size, position and the surrounding tissue/rim, we will not be able to repair the hole at this time. We will tell you immediately and you should be able to go home on the same day. We will then put you on the waiting list for surgery.

The device may not hold in place. When the device is opened and released, there is a small chance it may dislodge because the tissue/rim around the hole is floppy. This happens in less than 2 in 100 cases. If this happens we will try to retrieve the device, but it may be difficult to do this. If it cannot be retrieved in the catheter lab, open-heart surgery will be necessary to remove it and close the hole at the same time. This will be discussed with you during the consent process.

During any procedure of this kind, there is the risk of a stroke caused by a blood clot or air passing through the bloodstream and to the brain. This occurs in less than 1 in 100 cases. We minimise this risk by giving heparin and other drugs during the procedure to keep the blood thin. Other precautions are also taken to reduce the likelihood of air passing through the heart.

You may get some bruising after the procedure, which could extend down your thigh. Some bruising is normal but seek medical advice if you are concerned.

In certain cases bleeding can occur related to the procedure, the device and due to the blood thinning medication given before and after your procedure.

The risks include:

- Pulmonary haemorrhage (bleeding from your lung vessels). The risk of this happening is about 1 in 100. (You may cough up blood into your hand or tissue if you have a pulmonary haemorrhage)
- Tamponade (blood around the heart which compresses it). The risk of this happening is less than 1 in 100. (You may feel short of breath, light headed and dizzy, almost as though you could faint; this is a medical emergency so you will receive immediate treatment from your medical team)
- Erosion of the device, either after insertion or months or years later. The risk of this happening is less than 1 in 1000. (This can make you feel short of breath and tired, you may experience chest discomfort. If this happens inform your doctor straight away)
- Irregular heart rhythms. (These can make some people feel quite unwell, and others don't notice them; it's important to have an ECG to look at your heart rhythm)

Your consultant will discuss all the risks with you during the consent process

## About your hospital admission

You may need an appointment at the pre-assessment clinic before your planned hospital admission. Your consultant will decide if this is necessary.

At pre-assessment we will give you advice on any medication you need to take or stop before your procedure, and we will also tell you when you have to stop eating and drinking before your procedure.

## On the ward

You will be admitted to the ward the morning of your procedure, or the night before, and a doctor will take a brief history from you.

- You will be given a single dose of aspirin 300mg and clopidogrel 300mg the night before the procedure (you may be told to take these at home before coming in if you are arriving on the day of your procedure). If you have already been prescribed these medications for a pre-existing condition, the dose may alter for this procedure.
- You will need to shave your groin and have a pre-procedure shower with a special wash, which will be given to you.
- You will not be allowed anything to eat or drink for several hours before you go for your procedure.

## After your procedure

After your procedure you will have to stay in bed for four hours, you will have a tight dressing on your groin. After four hours a nurse will check your groin then you may be able to get up and walk around. You may experience some very mild discomfort in your groin (where the catheters were inserted) but this should quickly pass.

## The day after your procedure

The following investigations will be done before you are discharged, to check the device remains in a good position in your heart, and your heart rhythm remains unchanged.

- ECHO (which is a scan of your heart)
- ECG (which is a trace of your heart rhythm)

We recommend that a friend or relative goes with you on your journey home. A letter will be sent to your GP. This will detail what has happened to you in hospital and which tablets you are on. You will need to take aspirin and clopidogrel to thin your blood and stop clots forming on the device; we will let you know the dose of these tablets before you go home. How long you need to take these for will vary although most people will be on both for three months and then aspirin only until a year from the procedure. Please make sure you know how long you should continue taking these medicines for before leaving hospital. When you go home you should be back to full activity, including driving, within the week. If you have a physical job we will advise you on when you can go back to work.

We will send you a letter giving you a follow-up appointment with your cardiologist. The appointment is usually for 4-6 weeks after your procedure.

## Frequently asked questions

### Driving

There is no specific guidance from DVLA about driving following this procedure; however we would advise that you do not drive for one week. You may need to contact your insurance provider, as some policies may be affected.

### Flying

We advise you NOT to book a flight or holiday until at least one month after your procedure, when you have your first clinic review. If you need to fly within one month of your procedure, we advise you to contact the airline directly.

### Work

There is no specific guidance on when you can return to work, but this may depend on the type of job you do; you can return to work when you feel able. If you need to drive for work you should follow the advice above.

### Hobbies

You can return to sport when you feel well enough; however if you are a diver you need to discuss this with your consultant before returning to diving.

## For further information

### Contact details

Please do not hesitate to contact one of your congenital nurse specialists on the following numbers, we are available Monday-Friday, 8am-4pm on.  
0191 2448139 / 0191 2139239 / 0191 2448990

PALS (Patient Advice and Liaison Service) for help, advice and information about NHS services. You can contact them on freephone 0800 032 02 02, e-mail [northoftynepals@nhct.nhs.uk](mailto:northoftynepals@nhct.nhs.uk) or text to 07815500015.

### Useful websites

If you would like further information about health conditions and treatment options, you may wish to have a look at the NHS website at [www.nhs.uk](http://www.nhs.uk)

If you would like to find accessibility information for our hospitals, please visit <https://www.accessable.co.uk>

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