

Patent foramen ovale closure (PFO) in adults

Information for patients



What is a PFO?

The foramen ovale is a “flap” of tissue which is part of the wall separating the two small collecting chambers (the atria) of the heart.

In the fetus, the flap is pushed wide open, allowing blood in the right atrium to cross to the left atrium - a normal part of the circulation before birth. After birth the pressure in the left atrium increases and the flap is pushed closed, although often it is not quite “watertight”, so that in small babies it is frequently possible to detect a little blood flowing across it on an ultrasound scan of the heart. When blood flow across the foramen (in either direction) is detectable this is known as a patent foramen ovale (PFO).

Many adults have a PFO - perhaps as many as 20% of the general population, and the PFO in itself is harmless.

Stroke and PFO

With increasing age, it is possible that small blood clots form in the veins in the legs, even in people who are otherwise completely well.

If a blood clot in the leg breaks away and floats along the bloodstream it reaches the heart, and in most people, it would then usually get pumped to the lungs. This may cause very little in the way of symptoms unless the blood clot is big. However, in a patient with a PFO there is a chance that the blood clot might reach the heart and cross the PFO to reach the left side of the heart, where the clot can get pumped to the body instead of to the lungs.

If the clot then happens to be carried to the arteries which feed blood to the brain, it can block a small artery in the brain itself, stopping blood getting to that part of the brain. If the artery remains blocked, the area of the brain which is fed by that artery will die. This is known as a stroke and can cause symptoms such as weakness down one side of the body or difficulty with speech.

Most strokes are caused by disease in the arteries ("atherosclerosis") causing the arteries to become narrow and sometimes to block completely, or by heart disease causing blood clots to form inside the heart.

Patients who have had a stroke usually have tests to look for narrow arteries and heart disease but, particularly in young adults, sometimes no cause can be found but a PFO is detected. It is often very difficult in such cases to know whether the PFO has played a part in causing the stroke or not - although we know that it is possible for blood clots to pass through a PFO to cause a stroke, we also know that many normal adults who have not had strokes also have a PFO.

Having a stroke is very frightening and is potentially serious, so when no cause can be found except for a PFO, then doctors may think about closing the PFO in the hope of reducing the chances of the patient having further strokes in the future.

There is now very good research evidence that if patients are correctly selected closing the PFO is beneficial in terms of prevention of further stroke compared with treatment with medicines only.

Treatment for PFO closure

PFOs can be closed by a keyhole technique where a specially designed “button” is placed in the PFO through a long tube inserted into the vein at the top of the leg. The button used to close the PFO is guided into place using Xray pictures and a “transoesophageal” ultrasound scan (a “TOE” - a probe down the patient’s throat). This is usually done with a general anaesthetic. If you decide you want us to close your PFO it is important that you understand that, although PFO closure may reduce the risk of another stroke, it does not guarantee that another stroke will not occur.

Keyhole treatment carries a very small risk of death or stroke. There is also a very small chance (probably around 1 in 400) of other complications occurring, such as the device moving out of place after it has been put into the PFO. Usually this can be managed with another keyhole procedure.

Aftercare

After keyhole treatment most patients need only one night in hospital and are usually completely back to normal activities within a few days. You may have a bruise at the top of the leg, where the tube has been inserted, so we recommend a few days off work, not to drive and no heavy lifting for a couple of days.

Medicines to reduce the chances of blood clots forming on the device such as aspirin, are usually given for around 3-6 months after the procedure, by which time the device will be covered by a smooth layer of scar tissue as part of the normal healing process. We usually recommend that low dose aspirin should be continued for the rest of the patient’s life, even after successful PFO closure, as a secondary prevention of stroke.

You will be reviewed in the outpatient's department 2-3 months after the procedure, when an echocardiogram will be performed.

Other information

If you decide to proceed, you will be placed on the waiting list. You will receive a letter through the post with your procedure date. We try to give you around 4 weeks' notice but it's often not possible for us to give you more than a week or two notice of the date.

Please contact the secretary as soon as you receive your letter to confirm on: 0113 3928184

Or by Email: leedsth-tr.paedcardcathlist@nhs.net

This is very important, if you do not confirm in good time your slot will be offered to someone else.

Most people who are attending for a PFO closure **do not** need to attend a pre-assessment clinic. If you have a lot of other health problems then we may require you to attend pre-assessment or we may arrange some routine blood tests at your GP practice.

If you are taking an anticoagulant drug (blood thinner) this should be stopped in advance (usually around 3 days). A nurse will contact you to advise upon this around a week in advance of the procedure.

Please make sure you have had a recent dental check-up and all outstanding dental treatment has been completed before the procedure due to the small risk of endocarditis (infection in the heart).

If you receive the date for your procedure and become unwell, or something has changed since your clinic appointment, please contact the specialist nursing team who will advise whether any further tests are necessary.

We appreciate it can be quite a wait between your clinic appointment and your procedure so, if in the time waiting for your procedure you have any questions or concerns, then please contact the specialist nursing team who will be happy to assist you.

You can watch a video about a PFO patient consultation here:

<https://youtu.be/H0M8ZEVomfg>

or by scanning this QR code:



Further reading

Stroke association PFO statement:

https://www.stroke.org.uk/sites/default/files/new_pdfs_2019/policy_position_pfo_closure.pdf

Stroke association general information:

<https://www.stroke.org.uk/>

NHS England's clinical commissioning information:

https://www.england.nhs.uk/commissioning/wp-content/uploads/sites/12/2019/07/Clinical-Commissioning-Policy_Percutaneous-patent-foramen-ovale-closure-for-the-prevention-of-recurrent-cerebr.pdf

Landmark clinical trials

<https://www.nejm.org/doi/full/10.1056/nejmoa1707404>

<https://www.nejm.org/doi/full/10.1056/NEJMoa1610057>

<https://www.nejm.org/doi/full/10.1056/NEJMoa1301440>

European guideline paper

<https://academic.oup.com/eurheartj/article/40/38/3182/5144593?login=true>

5 year outcome data

<https://www.nejm.org/doi/full/10.1056/NEJMc2033779#:~:text=Closure%20of%20a%20patent%20foramen,recurrent%20stroke%20in%20selected%20patients.&text=Data%20on%20outcomes%20of%20PFO,closure%20with%20a%20single%20device.>

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