Percutaneous Coronary Intervention (PCI)

What is a Percutaneous Coronary Intervention?

A Percutaneous Coronary Intervention (PCI), also known as a coronary angioplasty usually with stent insertion, is a technique which widens the narrowed arteries in the heart, and 'squashes' the fatty tissue in them, allowing the blood to flow more easily. It is a procedure performed under local anaesthetic, with sedation if required. A detailed explanation of the procedure can be found further on in this leaflet.

Why do I need a PCI?

Your heart is a muscular pump which circulates blood around your body. Blood carries the oxygen and food your body needs to function. To pump properly your heart muscle needs a good blood supply. The coronary arteries are the blood vessels that supply your heart muscle with blood. If they become narrowed or blocked you may start to experience symptoms of chest pain/discomfort and shortness of breath.

The reason you need a PCI is because the doctors have looked at the results of your cardiac catheter test and found that one or more of your coronary arteries have become narrowed or blocked. Or they feel that you are a significant risk of having narrowed/blocked coronary arteries and have decided to look at your arteries and insert stents during the same procedure if required.

By opening up your coronary artery with a balloon and stent, the blood flow to your heart will improve and help prevent you getting angina pain.

The PCI procedure

This procedure is very similar to your cardiac catheter and is carried out in the Catheterisation Suite. You will be taken on your bed to the Catheterisation Suite. On arrival, you will be asked to lie on the X-ray table, and you will be attached to a heart monitor.

The procedure can be performed from the artery at the top of your leg, or the artery in your wrist. You may be given some sedation through a drip in your hand to help you relax during the procedure, and a blood thinning drug called heparin. Local anaesthetic will be injected into either the wrist or the groin to make the area numb and reduce discomfort.

Next (just as with your cardiac catheter), a sheath (small tube) will be placed into the artery in the groin or wrist. Then a long thin tube called a catheter is fed via the sheath, into your artery where it is then guided around your body under X-ray control until the tip reaches your heart. Once the catheter is in place dye will be injected through the catheter to show up the blood vessels in your heart on X-ray.

The doctor, having identified the narrowed coronary artery, will introduce a very thin wire and steer it across the narrowed part of your artery. Once in place, a balloon is introduced across the narrowing and inflated so that it squashes the fatty tissue and widens the artery.

Next a stent is usually inserted. This is a metallic tubular mesh which holds the artery wall open. It is introduced crimped around a balloon. As the balloon inflates, so the stent expands against the walls of the newly widened artery. The balloon is then deflated and withdrawn, leaving the stent in place. Sometimes patients can feel chest pain when the balloon is expanded. Please inform the doctor if you feel any pain or discomfort during the procedure so that medication can be given to you to relieve this.

How often is the procedure successful?

PCIs are almost always a successful procedure. Occasionally it does not work or your symptoms may return, and your doctor may decide that another treatment such as a further PCI or an operation called 'Coronary Artery Bypass Graft Surgery' should be considered.

What are the risks of having this treatment?

The risks of a PCI are small, but as with any heart procedure there can be occasional complications which are described below:

Less serious:

- Bruising, mild bleeding and discomfort at the place the catheters are introduced. This is not uncommon but is a little more likely if you are taking anti-clotting drugs. Any bruising will usually disappear over 2–3 weeks

Serious but rare:

- Less than 2 in 100 (2%) combined risk of a major adverse event (death or stroke or emergency heart surgery or major heart attack)
- Less than 1 in 100 (1%) risk of damage to the blood vessel which may require a further procedure or operation to correct
- Less than 1 in 200 (0.5%) risk of an abnormal heart rhythm which may require an electric shock for treatment
- There is the risk of radiation exposure that is equivalent to 4–6 years background atmospheric radiation
- The contrast dye used can, in rare circumstances, cause an allergic reaction or cause kidney function to deteriorate. Kidney dysfunction is more likely in patients who already have impaired kidney function
- As the procedure will be performed under X-ray, any women with childbearing potential will be assessed for possibility of pregnancy and may be asked to provide a urine sample for pregnancy testing
- For some patients the risks may be higher than those described above. Please speak to your specialist doctor before your operation if you have any worries

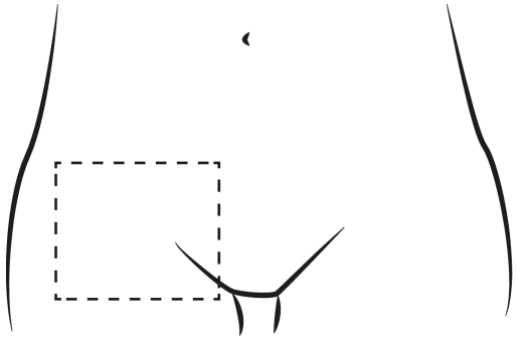
The risk of a cardiac event after your PCI is reduced by certain medications, which we will recommend you take. These include drugs such as aspirin, statins to lower cholesterol, and angiotensin converting enzyme inhibitors (ACE inhibitors). In addition, after insertion of a stent you

will be started on an extra medication to reduce the risk of clots forming in the stent(s), such as clopidogrel, prasugrel, or ticagrelor (more details given below).

What do I need to do before I come into hospital?

You will be contacted by the pre-assessment nurse on the telephone prior to your procedure. It is important that you write down the information they give you, particularly with regards to any blood thinning medications you may be taking.

Most PCI procedures are carried out via the artery in the right wrist. However, occasionally this might not be possible, and the doctor may need to gain access via the artery at the top of the right leg. On the night before admission, carefully shave your right groin area (an approximate 20cm x20cm shaved area). This will prepare your groin site for where the catheter might be inserted.



Shaved area

Please ensure that the nurse checks that your shave is adequate – if necessary, the nurse will be happy to shave this area for you.

Food and drink

On the day of your procedure please eat and drink as you normally would.

What should I bring with me?

You should bring a dressing gown and slippers, as well as all your regular medications. You may wish to bring a book or newspaper as you will be with us for most of the day. An overnight bag is recommended if on the rare occasion you must stay.

Medication instructions

Most medications should continue as usual on the day of your procedure, but some need to be omitted, you will be advised of this by the pre-op nurse.

Please bring all your usual medications into hospital.

What if I am diabetic?

Take all of your medications as normal and remember to bring them into hospital with you.

What if I am taking warfarin or other anticoagulants?

Anticoagulant drugs include warfarin, rivaroxaban, apixaban, dabigatran and edoxaban. You should continue this medication, unless otherwise advised by your consultant or the pre-assessment nurse to stop.

You will be advised what to do by the pre-assessment nurse on the phone – remember to write it down so that you do not forget.

If you are unsure about taking any of your medication before admission to hospital, please seek advice from hospital staff at the pre-admission clinic.

Any other medications

All other medications should continue as usual. If you normally take water tablets, you may prefer to not take them on the day of the procedure, for your convenience.

What happens when I arrive at the hospital?

The nurse caring for you will show you to your bed or trolley and take your blood pressure and pulse. A doctor/advanced clinical practitioner may come and ask you some questions and perform a brief examination. A small cannula will be inserted in the back of your hand so that medication can be given if needed.

Your nurse will also arrange for an electrocardiogram (ECG) to be recorded. This is a paper recording of the electrical activity of your heart.

Very occasionally, a test may be postponed if the medical examination finds something which needs to be sorted out first, for example if your blood pressure is too high.

You may have to wait some time before the test is performed so your patience is appreciated.

What happens afterwards?

On your return to the recovery area, your nurses will give you your bed rest instructions, which will vary depending on whether the test was done via your wrist or via your groin. You may be on bed rest for several hours after your procedure.

During this time, you will be closely observed by the nursing staff, and have frequent checks on your blood pressure, pulse and puncture site to ensure there is no bleeding.
Please do not hesitate to inform the nurse if you feel any pain or discomfort anywhere. Any chest pain at this stage must be reported to the nurse immediately.

Will I be able to eat and drink?

You will be provided with refreshment on your return to the ward. If you need to remain flat for some time on first returning to the ward, drinking straws will be provided.

When will I be able to go home?

Patients may be discharged the same day or stay in hospital overnight following their PCI. This depends on a few things such as how early in the day the PCI was performed and if there were any unexpected findings. Please bring an overnight bag for such an occasion. If a patient stays overnight, they are usually ready to go home by 9am the following day. We may ask you to wait in our discharge lounge while you wait for transport. This allows the next patient to be prepared for their procedure.

What medication should I take once I am discharged?

It is usual for you to continue with all your normal medications, including any that the hospital may have prescribed, until you have been reviewed by the Cardiac Rehabilitation Service or your consultant. After a PCI you will need to be treated with drugs that reduce the stickiness of your blood, to stop the stent(s) clotting. These are called anti-platelet agents. You will need to be on a combination of two of these drugs. This will be aspirin, and one of either Clopidogrel, Prasugrel, or Ticagrelor.

You will need your GP to provide a repeat prescription before your hospital supply runs out. Clopidogrel/Prasugrel/Ticagrelor is likely to be necessary for at least 6 months, and sometimes for a year. It is essential that your Clopidogrel/Prasugrel/Ticagrelor and aspirin are not stopped too soon, as this may lead to a sudden blockage of the new stent in your artery. If there is any doubt about this, or you think you may be experiencing a side effect from these medications, always check with your cardiology team before stopping these tablets.

Driving post procedure

You are not permitted to drive for 7 days after your PCI. This is a rule set by the DVLA. Be sure to tell the nurse if you need transport to take you home.

On the day of your procedure, please arrange for a friend or relative to collect you. They can call the recovery unit to find out what time to collect you.

Birmingham Heartlands Day Case: 0121 424 3403

At home

As the test involves a major blood vessel there is a small risk of bleeding, particularly if the procedure has been performed from your groin. It is very important to rest for the next 24 hours, and if the procedure has been performed from your groin you should avoid any vigorous walking, strenuous exercise, lifting or housework for the next 24 hours. You will need a responsible adult to remain at home with you for 24 hours after the procedure. Failure to arrange this may result in your procedure being cancelled on the day.

What do I do if…

My wound starts to ooze.

If the procedure was done via the top of your leg, then lie down and apply pressure over the area to help slow the bleeding. If it was done via your wrist, sit down and elevate your wrist to heart

level or above. In both cases, press firmly on the puncture site for 10 minutes. If the wound continues to bleed after 10 minutes of firm pressure, go to your nearest Emergency Department.

My wound "spurts" dramatically?

As above, lie down and press firmly on the puncture site, and call an ambulance immediately (dial 999).

My wound develops a large excessive bruise, or a lump develops under the skin.

A small pea-sized lump will develop under the puncture to the skin – this is normal. If the lump becomes larger than this, becomes tender or starts to develop a redness or discharge, contact the number given to you on discharge.

I develop unexpected symptoms suggestive of a stroke.

Stroke is a rare complication of coronary catheterisation and angioplasty but it is important that you and your partner (or carer) are able to recognise the early signs of this condition as urgent hospital treatment is needed. Delays can lead to much more serious and sometimes permanent brain damage.

Suspect a stroke? Think FAST!

What is FAST?

Facial weakness – can you smile? Has your mouth or eye drooped?
Arm weakness – can you raise both arms?
Speech problems – can you speak clearly and understand what people say?
Time – to call **999**

So if you develop any of the symptoms above call an ambulance immediately (dial **999**)

Cardiac Rehabilitation Service

You may be seen by the Cardiac Rehabilitation Team before you leave. If you do not get seen while in hospital, they will follow up with you once you are back home. If you live outside of the Birmingham area, our Cardiac Rehabilitation Team will contact your local team and ask them to follow up with you.

The aim of Cardiac Rehabilitation is to help you recover from your PCI and get back to as full a life as possible after your treatment. Your engagement in the Cardiac Rehabilitation services offered to you will allow you to have contact with specialist nurses and exercise physiologists who will refer you to other services involved in the care of cardiac patients such as lipid (cholesterol) specialists, smoking cessation as and when appropriate. Your Cardiac Rehabilitation Team will invite you to attend sessions held in the area locally to where you live. These sessions will offer you helpful advice, guidance and information about all aspects of your condition and recovery.

The contact number for the Cardiac Rehabilitation Service at Birmingham Heartlands/Solihull Hospital **0121 424 3312** and Good Hope Hospital **0121 424 7465**

Making comments or complaints

We hope you have no cause for complaint during your stay. However, should you have any problems, please do not hesitate to tell the nurse, and we will try to resolve the matter there and then.

Alternatively, there is the Patient Advice and Liaison Service (PALS) who have personnel that will be happy to sort out any problems, concerns or complaints that you might have.

Accessibility

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