



University Hospitals Birmingham
NHS Foundation Trust



Percutaneous Coronary Intervention (PCI)

Information for patients and carers

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Contents

What is a Percutaneous Coronary Intervention?	3
Why do I need a PCI?	3
The PCI procedure	3
How often is the procedure successful?	4
What are the risks of having this treatment?.....	4
What do I need to do before I come into hospital?	5
Food and drink	6
Transport	6
What should I bring with me?.....	6
Medication instructions	7
What if I am diabetic?.....	7
What if I am taking warfarin or other anticoagulants?	7
Any other medications.....	8
What happens when I arrive at the Ambulatory Care Day Case Unit?..	8
What happens afterwards?	8
Will I be able to eat and drink?	9
When will I be able to go home?.....	9
What medication should I take once I am discharged?.....	9
Driving post procedure	10
At home	10
What do I do if.....	10
Cardiac Rehabilitation Service	11
Making comments or complaints.....	11
Useful information	12

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 booklet.

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. 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.

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 will be given some sedation through a drip in your hand to help you relax during the procedure, and also 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 angiogram), a catheter sheath 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.

When the doctor has finished, the catheter and sheath will be removed and a pressure pad or closure device will be used to seal the hole. The nursing staff will explain the after-care on return to the Ambulatory Care Unit.

How often is the procedure successful?

PCI's 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 child bearing 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?

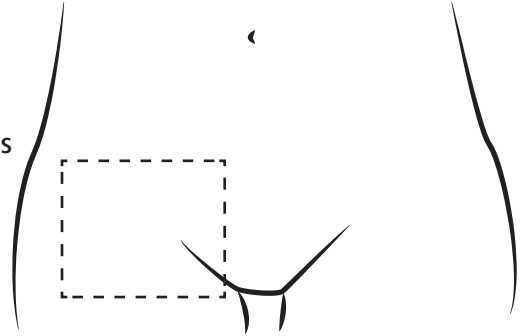
You will be asked to attend a pre admission clinic approximately 1 week prior to your admission date. It is important that you attend this appointment as we will need to undertake necessary nursing and medical assessments.

The majority of 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 see diagram below).

This will prepare your groin site for where the catheter might be inserted.

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



Shaved Area

Food and drink

On the day of your procedure you must not eat for 6 hours before the procedure (including chewing gum), but you should drink clear fluids up to 2 hours before the procedure (water or tea/coffee **without milk**).

Transport

You are not permitted to drive for 7 days after your PCI. This is a rule set by the DVLA.

Please make provisional arrangements for a relative or friend to collect you between 9:00am and 9:30am on the morning of your discharge. They can call the ward to come and confirm the time that they can collect you: 0121 371 3125.

What should I bring with me?

The Ambulatory Care Ward is a mixed sex ward with separate ward areas and hygiene facilities for male and female patients. As you will be staying overnight, please bring a dressing gown, slippers and toiletries. Mobile phones are permitted.

Medication instructions

Most medications should continue as usual on the day of your procedure, but some need to be omitted. Please bring all your usual medications into hospital.

What if I am diabetic?

- Do not take Metformin on the morning of your PCI
- Do not take other tablets for diabetes on the morning of your PCI
- Do not take insulin on the morning of your PCI. The doctors may use an intravenous dextrose and insulin infusion to control your sugar levels if necessary

What if I am taking warfarin or other anticoagulants?

Usually you must stop taking anticoagulant medication three days before your PCI. Anticoagulant medications include:

- Warfarin
- Apixaban
- Rivaroxaban
- Edoxaban
- Dabigatran

In most cases this temporary discontinuation is safe; however, if you have an artificial heart valve, or other strong reason to be taking one of these drugs, your consultant may have arranged for you to come into hospital 2 days earlier in order to switch you to an alternative blood thinning medication such as heparin, which has to be given into a vein. If you have any doubts, please ring your consultant's secretary before stopping your anticoagulant drug.

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 Ambulatory Care Day Case Unit?

The nurse caring for you will show you to your bed or trolley and take your blood pressure and pulse. A doctor 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 Ambulatory Care Unit, 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.

If the procedure was done via your groin, you will be kept in bed lying flat for 2 hours. You will be asked to keep your leg very still during this time. This is very important, as it will reduce bleeding from the wound. After flat bed rest, a period of sitting up in bed is needed before finally allowing you out of bed.

If the procedure was done via your wrist, you will be able to sit up straight away, though your nursing staff may ask you to stay in the bed for a period of time depending on how much sedation you've been given. You will have a pressure band applied to your wrist, which

will prevent bleeding from your puncture site. The pressure will be gradually released from this band over 2–3 hours.

During this time you will be closely observed by the nursing staff, and have frequent checks on your blood pressure, pulse and puncture sites 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 usually stay in hospital overnight following their PCI, and 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.

Before you go home you will be given a letter for your family doctor with information about what has happened and what medication you are taking. We will send you an appointment in the post to attend the outpatients clinic following your PCI.

What medication should I take once I am discharged?

It is usual for you to continue with all of your normal medications, including any that the hospital may have prescribed, until you have been reviewed by your consultant in the Outpatient Department. 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 also 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.

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.

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.

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 Ambulatory Care on 0121 371 3125 (see opening hours below).

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 all of the specialists involved in the care of cardiac patients, such as dietitians, physiotherapists, psychologists and occupational therapists, as well as the specialist nurses. 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 Queen Elizabeth Hospital Birmingham is 0121 371 4711.

Making comments or complaints

We hope you have no cause for complaint during your stay on Ambulatory Care. 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. The contact details for this department are shown overleaf.

Useful information

Ambulatory Care

Level 0, Queen Elizabeth Hospital Birmingham,
Mindelsohn Way, Edgbaston, Birmingham, B15 2GW
Telephone: 0121 371 3125

Cardiac Rehabilitation Team

0121 371 4711

Heart to Heart Patient Support Group

0121 472 6794

Heart and Angina Support Group

0121 426 1915, 0121 451 1136

QEHB Patient Advice and Liaison Service (PALS)

Queen Elizabeth Hospital Birmingham,
Mindelsohn Way, Edgbaston, Birmingham, B15 2GW
Telephone: 0121 371 3280 (office hours 09:00–17:00)



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Coronary Angioplasty

Level 0

Queen Elizabeth Hospital Birmingham
Mindelsohn Way
Edgbaston, Birmingham, B15 2GW
