

Coronary angiography

What is coronary angiography?

Coronary angiography is a specialised procedure used to visualise the arteries of the heart with the help of X-ray imaging and a contrast dye. It serves as the most accurate method to identify and analyse obstructions or blockages in the heart's arteries, allowing appropriate treatment if needed.

How is coronary angiography done?

The procedure is conducted in a specialized X-ray room known as the Cath Lab. During the procedure, you'll lie flat on an X-ray table, and be given light sedation to relax, although you will remain awake. Dr. Parkinson will administer a local anesthetic to numb the wrist area before inserting a small hollow tube (sheath) into your radial artery. Rarely, this might be done in the groin. A catheter is then threaded through the sheath, up the artery in your arm to the coronary arteries supplying your heart, a process that is typically not felt by the patient.

Dr. Parkinson will measure pressures inside the heart and use an X-ray camera to take pictures of the arteries as he injects contrast dye. A team of medical professionals will closely monitor you throughout the procedure. The angiogram provides immediate insight into any blockages, allowing Dr. Parkinson to assess their severity and, if necessary, proceed with stenting to open the blockages.

Risk of complications during coronary angiography?

Over 99% of angiograms are uneventful but there is a small risk of complications. Please make sure that that you understand these before you sign the consent form and ask the doctor any outstanding questions.

Risk of serious complications:

- **Death:** Under 1 in 1,000 (0.1%)
- **Heart attack** (myocardial Infarction): 1 in 500 (0.2%)
 - *If a heart artery blocks off during an angiogram. this is usually treated by immediate angioplasty and/or a combination of different medications.*
 - *Very rarely it may need emergency bypass surgery.*
- **Stroke:** 1 in 500 (0.2%)
 - *A stroke might happen if the catheter dislodges material from the main blood vessel in the body (aorta) and this material blocks blood flow to part of the brain.*

Minor complications include bleeding or bruising at the arm or groin access site, excess bleeding which needs a blood transfusion or vascular surgery (less than 1%), allergic reaction to the dye (less than 1%), kidney impairment (usually reversible) - under 1%.

Before your visit

- You must tell us if you are allergic to anything, including X-ray dye (contrast or iodine). While modern research shows is not strictly necessary for you to fast, the hospital may request that you do not eat anything for approximately 3 hours prior to your procedure.
- You will stay in hospital for at least three hours after your procedure but be ready to stay overnight which is sometimes necessary.
- Please bring a list of all your current medication. Continue to take your medication as normal unless you are taking:
 - Rivaroxaban (Xarelto), Apixaban (Eliquis), Dabigatran (Pradaxa); stop these 48 hours before the procedure (unless we tell you otherwise).
 - Warfarin; please ask the doctor whether you should stop this
 - Metformin, Dapagliflozin or Empagliflozin for diabetes; please stop these medications 48 hours prior to your procedure
 - Aspirin or Clopidogrel (Plavix) – Please continue to take these medications as you normally would
- If you have diabetes and are being admitted on the morning of your procedure you may need to modify your insulin dosage depending on what your diet will be on the day of the angiogram. If you need help managing your diabetes at the time of your angiogram, please contact the cardiologist or the hospital cardiac catheterisation department.

What you need to know about your stay

- Bring an overnight bag including a book or something to help you pass the time.
- Leave all jewellery and valuables (other than your wedding ring) at home. You may wear your wedding ring during the procedure
- Leave your hearing aid in if you wear one so that you can hear any instructions.
- You cannot drive for 48 hours afterwards so arrange for someone to drop you off and pick you up.
- Your escort/partner/friend won't be able to stay in the unit but may wait in the visitors' waiting area and cafe. Please tell the nurse who is admitting you if someone is with you.
- Afterwards, the doctor will discuss your results with you. This will cover the main points and advice with a more detailed discussion at your follow up visit.

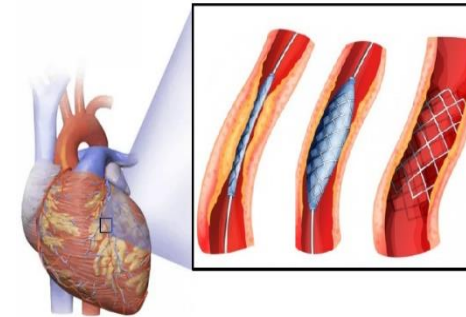
Percutaneous Coronary intervention (Stenting)

What is stenting?

After the angiogram Dr Parkinson may recommend an intervention (coronary angioplasty or stenting) to open a blocked artery. This is also called a percutaneous coronary intervention or PCI or stenting.

A stent is a small metal scaffold. A tiny balloon is threaded down the catheter and inflated to open narrowed areas in the arteries of your heart. A stent can then be inserted through the catheter to keep this blockage open. Improving the blood flow to your heart muscle like this will help your symptoms and/or improve how your heart pumps.

This may be done at the same time as your angiogram or you may be discharged and readmitted for the angioplasty at a later date. Dr Parkinson will explain what is best in your particular circumstances and why. If you are having angioplasty immediately after your angiogram the same tube is used for both procedures.



Typically, a stent is inserted into the blockage to hold it open (Figure) this reduces the chance of the blood vessel narrowing again in future.

Advanced testing

Dr Parkinson is may perform additional testing of your arteries if there is any question as to the severity of your coronary disease. This may include inserting a special wire with a pressure sensor down the artery to measure and compare the blood pressure before and after a narrowing. Dr Parkinson may also take a special ultrasound image or OCT image from inside the artery to help determine the composition of the plaque and how best to treat it.

Risks of complications during coronary angioplasty and stenting

Most people (97-98% have no major problems but serious complications can happen. The procedure is recommended if the benefit of the intervention outweighs the small risks of the procedure.

You may possibly feel some chest discomfort during the procedure to open a blocked artery. This would usually only occur for a short period related to ballooning open the narrowing. If this becomes very uncomfortable, you will be given strong painkilling medication.

Please make sure that you understand the risk of serious but rare complications before you sign your consent form.

- **Death:** Under 1 in 500 (0.2%)
- **Heart attack** (myocardial infarction): 1 in 100 (1%)
 - *This is a minor event detected only by blood tests and is quite different to a typical major heart attack. It usually only affects small amounts of heart muscle damage and is generally not serious. However, rarely a serious heart attack can happen following angioplasty.*
- **Stent thrombosis (Clotting):** 1 in 100 (1%)
 - *When a blood clot forms within the stent it blocks it off and can cause a heart attack. To reduce the chance of this happening you will be asked to take medication after the stent is inserted. We may ask you to keep taking this for up to a year. Do not stop this without speaking to your cardiologist.*
- **Stroke:** 1 in 200 (0.5%)
- **Emergency open heart surgery:** less than 1 in 500 (0.2%)
- **Renarrowing after stenting (stent restenosis)**
 - Sometimes arteries renarrow following angioplasty or stenting. This usually occurs slowly over 6-9 months and is able to be treated. The risk of need for a repeat procedure is around 2% per year. It is more common in patients with smoking, unhealthy diet, sedentary lifestyle, poorly controlled cholesterol/ blood pressure/ diabetes. You may find that you slow down or have more chest tightness or breathlessness. If stent restenosis does occur, it is usually treated with a repeat angiogram and ballooning/stenting (or rarely requires bypass surgery).

The chance of these potential complications depends on the initial severity of the heart disease. Problems are less common during elective (planned) procedures compared to urgent or emergency procedures.

If you have any questions about the procedure, please talk to the doctor about them before signing the consent form.

