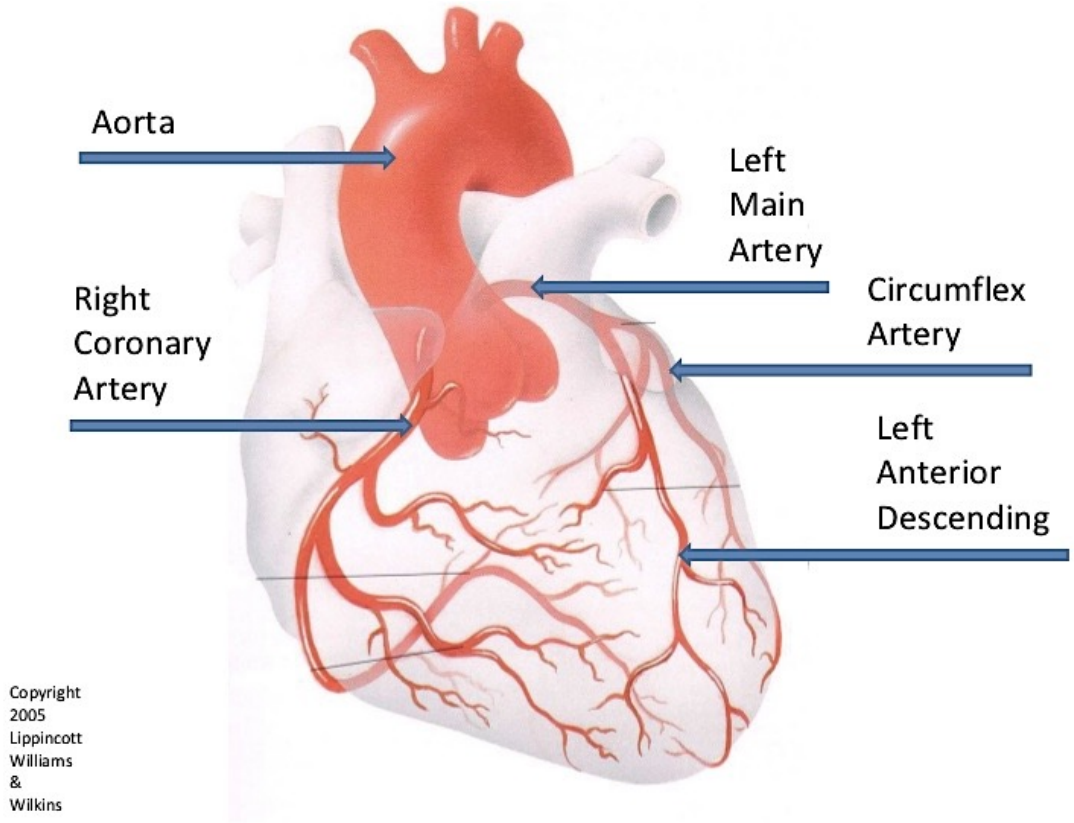
Coronary Angiography

(Note: the information below is a general guide only)

Coronary angiography is the definitive diagnostic procedure to look for any narrowing or blockages in your coronary arteries (blood vessels supplying blood to the heart muscle itself). There are two main coronary arteries which then divide into branches as shown in the diagram below.



Why to do it?

Coronary angiography is recommended when there is any suspicion of coronary artery disease. Some of the reasons why it is done are:

- You have chest pain that is suspected to be caused by narrowed coronary arteries.
- To assess the degree of narrowing / blockage in your coronary arteries to see if they need to be unblocked by a procedure such as angioplasty and stent insertion or whether bypass surgery is required.
- You have failed a stress test (or similar test) and more details are needed about your coronary arteries for further decision making.
- If a CT scan of the heart shows significant narrowing of the coronary arteries.
- You have had a heart attack, no matter how minor.
- If you are going for any kind of open heart surgery, coronary angiography may be done before hand to assess coronary arteries.

- In Heart Failure and primary diseases of the heart muscle (called cardiomyopathies) coronary angiography is sometimes used to rule out coronary artery disease as a cause.
- In certain arrhythmias (abnormalities of heart rhythm) where your treating cardiologist thinks that coronary artery disease should be ruled out as a cause.
- Sometimes where there are unexplained significant ECG changes and suspicion for coronary artery disease is high.
- Chest trauma where heart damage might be suspected.
- Occasionally done before high risk non-cardiac surgery in patients suspected of significant coronary artery disease.
- Sometimes in patients who require renal, liver, lung or other transplants.
- Before heart transplant.

Before the procedure

Coronary Angiography is recommended, performed and interpreted by Cardiologists. It is done in hospital in special operating room called Cardiac Catheterization Laboratory (Cath Lab). You will make the decision to go ahead with Coronary Angiography in consultation with your cardiologist. He/she will explain the procedure and will get you to sign a consent form. Please make sure you ask any questions that you may have before you sign the consent. Occasionally the procedure is explained much earlier while consent is signed just before the procedure which allows you to have time to think about it and ask questions.

Before you come to hospital, you may be asked to have other tests like blood tests, an electrocardiogram (ECG), and a chest X-ray.

You may be admitted to hospital the night before your coronary angiogram, but most people are admitted the same day, usually two hours before the procedure. In most instances, patients will be discharged from hospital on the same day. You will not be allowed to drive back, so there should be arrangements for your transport back home.

You will be asked not to have anything to eat or drink for at least six hours prior to the procedure.

Once you arrive in the hospital, you will be greeted by the hospital staff and then given a bed. You may be asked to remove any jewellery that you might be wearing and to put on a hospital gown. You will be shaved in the area where the catheter will be inserted. An intravenous (iv) line will be inserted to administer iv fluids / medications as needed.

Are there any risks involved?

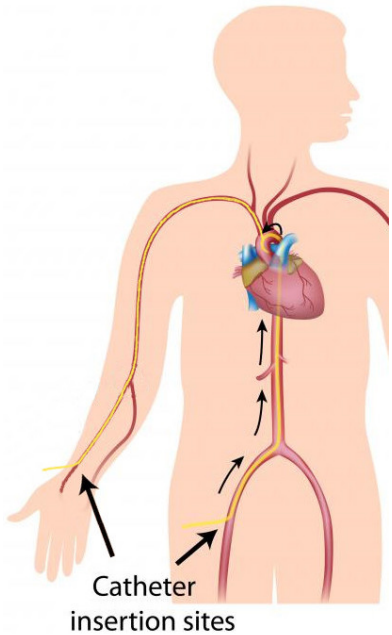
As Coronary Angiography is an invasive procedure, there are some risks. However serious problems are rare. Most people have no trouble, and the benefits usually far outweigh the risks. It is outside the scope of this introduction to explain all the potential complications but you are encouraged to discuss these with your cardiologist and get clarification about any concerns that you may have about coronary angiography.

The procedure

Coronary angiography is done in special catheterization laboratories ('cath-labs') that look like operating theatres. It is a procedure that involving X-Rays and injecting a special dye containing iodine into the blood vessels. You may feel hot when this dye is injected.

Cardiologist performing Coronary Angiogram in Cath Lab

You will be taken to the Cath Lab and asked to lie on a narrow table, which can be moved in all directions during the test. You will be connected to a few monitoring devices and then the shaved parts (either your wrist, groin or both) will be cleaned and sterilized with special solution (which may feel cold). After that your whole body will be covered with sterile drapes.



You will be given mild sedation through intravenous drip to help you relax. Your cardiologist will then inject local anaesthetic into your wrist, arm or groin from where the catheter is to be inserted. A sheath will then be inserted into the artery at that point. Through this sheath various catheters will be inserted, advanced to reach the heart and changed as required. Different catheters are needed to study the different arteries. One will be removed and the next introduced through the same sheath in your groin or arm. Through these catheters the dye will be injected which fills your coronary arteries thus making them visible to the X-rays. The X-ray dye passes through your kidneys and is excreted in your urine. There is an X-Ray camera that moves around and records short moving clips of dye flowing through various vessels from different angles. Most people do not feel any pain or sensation during the test. There are no nerves inside your arteries, so you will not feel the movement of catheters through your body. Some people may have nausea or chest

discomfort when the dye is injected, but this does not last long. A larger injection of dye is given when your heart muscle is to be examined. This may give a hot feeling in your upper chest first, then over the rest of your body. You may feel that might have urinated but you haven't. These symptoms do not last longer than 20-30 seconds.

After the Procedure

The test will take about 30 to 40 minutes to complete after which the catheters and sheath will be removed and pressure applied to the area where it was inserted. On the wrist a small band is placed for few hours. You will be moved to the ward or recovery area to rest in bed for at least four hours. Depending on the result, you may go home after four to six hours. Remember you will not be allowed to drive for 24 hrs after the procedure. Some people may need to stay in hospital longer so that their symptoms can be monitored further.

Your cardiologist will explain the results of the test. The information about your heart and coronary arteries will help your cardiologist to recommend the best treatment for you. Depending on the extent of the narrowing / blockage in your arteries, treatment for coronary heart disease usually includes medications, coronary angioplasty with stent insertion or bypass graft surgery (open heart surgery).

Coronary Angioplasty / Stent insertion (Also called PCI – Percutaneous Coronary Intervention).

Coronary angioplasty is a procedure where a special balloon is placed inside the narrowed artery and then expanded to open it up. The procedure is similar to a coronary angiogram. Very often a small expandable metal mesh called a stent is implanted at the narrowed site to keep the artery open. This procedure is explained in more detail in other information leaflet.

Bypass surgery

Bypass surgery is open heart surgery performed by cardiac surgeons. In this operation a healthy section of blood vessel from your chest, forearm or leg is taken and is grafted to your coronary artery beyond its most narrowed part. The blood flow then detours and bypasses the narrowing.

For information about other procedures please see HeartWest's other leaflets