



# CORONARY ANGIOPLASTY

## QUEENSLAND CARDIOVASCULAR GROUP

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Your heart has something in common with all the other organs in your body. They all require oxygen and nutrients to function well. Arteries are blood vessels that carry oxygen and nutrients from your heart to the rest of your body. Healthy arteries are flexible, strong and elastic and have a smooth inner lining that allows blood to flow freely. However, these arteries can become stiff and narrow if cholesterol, cells and other substances build up inside these arteries. This is commonly referred to as atherosclerosis. This build up can cause a partial or total blockage in the artery restricting blood flow. Remember, it is the blood that carries the vital oxygen and nutrients.

The heart receives blood via its own set of arteries known as the coronary arteries. This group of arteries allows blood to be supplied to all areas of the heart tissue.

A reduced flow of blood to the heart can cause various symptoms. Chest discomfort is the most common symptom. This is called angina. Both a partial and completely blocked artery can lead to a heart attack.

Treatment of angina may be by one of three means:

- 1) Medications to improve blood supply through the narrowed arteries;
- 2) Coronary artery bypass surgery;
- 3) Percutaneous transluminal coronary angioplasty.

Coronary Angioplasty is an invasive procedure performed to reduce or eliminate blockages in the coronary arteries, restoring blood flow to the heart tissue that has been deprived of oxygen and nutrients.

Coronary Angioplasty is not suitable for all blocked or narrow coronary arteries. Factors such as the number of blockages and where they are situated will determine if angioplasty is the most suitable treatment option for you. Your Cardiologist will have determined the most suitable treatment based partly on the result of the coronary angiogram.

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## THE PROCEDURE:

- Before the procedure ask any questions regarding your uncertainties.

### Medication Instructions

Your Cardiologist will advise you if there is to be any changes to your usual medications prior to the procedure.

### Fasting

You will be asked not to have anything to eat or drink for 6 hours prior to the procedure. If your doctor has advised you to take your usual medications, take these with a small amount of water early on the morning of the procedure.

### Allergies

You will be asked if you are allergic to any medications that you know of. Please Note:

**X-RAY DYE (CONTRAST SOLUTION)**  
SOLUTION USED IN THIS PROCEDURE CONTAINS IODINE. IF YOU HAVE AN ALLERGY TO IODINE YOU MUST INFORM YOUR DOCTOR PRIOR TO THIS PROCEDURE.

### Skin Preparation

Your groin area or arm will be clipped and you will be asked to shower using an antiseptic soap and dress in a hospital gown.

### Premedication

A small plastic tube will be inserted into a vein in your arm and an intravenous infusion of fluid will be connected to it.

You may be given a mild sedative to swallow prior to the procedure to help you relax.

### Tests

Your doctor may request you to have some tests done prior to the procedure when you arrive in hospital. These may include blood tests, electrocardiograph (ECG) and a chest X-ray. Bring with you any chest X-rays from the last 6 months.

- During the procedure:

### Cardiac Catheter Laboratory

You will be taken to a special theatre for the procedure to be performed under sterile conditions. This theatre has X-ray equipment and monitors to assist in acquiring pictures of the coronary arteries.



### Monitoring

Electrodes are attached to your arms, chest, legs and back.

### Anaesthetic

General anaesthesia is not required for this procedure, so you are awake during the procedure. You may be given additional medications for

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sedation or pain relief during the procedure through the intravenous infusion connected to the small tube in your arm.

### Arterial Puncture

Access to the blood circulation may be from the right or left leg, right elbow or right wrist artery. A small amount of a local anesthetic agent (usually 1% Lignocaine) is injected into the skin. You may briefly experience a cool or a mild stinging sensation.

A hollow needle is inserted into the artery and a small tube (6 cm to 9 cm in length) called a “sheath” is inserted so as to gain access to the circulatory system. You may feel a bit of pressure while the sheath is being inserted. Thereafter you should not feel any discomfort.

A long, thin plastic tube (catheter) is inserted into the sheath and advanced through the arterial system into a coronary artery. You won't feel the catheter in your body.

By watching on a special X-ray screen, the doctor can move the catheter into the artery. A small amount of contrast agent or dye is injected through the catheter. Areas of blockage are shown up on the X-ray images, so your Cardiologist knows precisely where to target treatment.

### Coronary Balloon Angioplasty

Next, a very thin wire is threaded into the narrowed artery across the blockage.

Over this wire a thin, expandable balloon is passed to the blockage.

The balloon is inflated at the site, partially decreasing the amount of blockage. The balloon then deflates.

Because the balloon temporarily blocks blood flow to part of your heart, it is common to experience chest discomfort / pain while it is inflated. Your Cardiologist might inflate and deflate the balloon several times before it is removed, stretching the artery a bit more each time to widen it. If you have several blockages, the procedure may be repeated at each site.

Your Cardiologist and a team of Nursing staff will be monitoring you during the procedure. If you are experiencing any discomfort or pain it is important that you let them know. Your Cardiologist will prescribe medication that the Nursing staff will administer during the procedure to try and make you as comfortable as possible.

### Stent Insertion

Once the artery is widened, a device called a stent may be placed in the artery as scaffolding to help prevent it from re-narrowing after the angioplasty. The stent looks like a very tiny lattice-work coil of wire mesh. A stent is not deployed in all

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instances. Your Cardiologist will discuss this with you.

To insert a stent, it is compressed on to a balloon catheter and guided to the blockage. When the balloon inflates, the spring-like stent expands and locks into place inside the artery.

The stent remains in the artery permanently to hold it open and improve blood flow to your heart.

Stents can be coated with medication that is slowly released to help prevent arteries from re-clogging. These coated stents are called drug-eluting stents.

Once the stent is in place, the balloon catheter is removed and more images (angiograms) are taken to see how well blood flows through your newly widened artery. Finally, the guide catheter is removed and the procedure completed.

#### Duration

The procedure can take anywhere between 30 minutes and several hours.

#### ➤ After the procedure

#### Recovery

Your Cardiologist may leave the tube in your groin/arm for several hours after the procedure so the vessel isn't disturbed. If your puncture site was in your groin you

will be asked to lie still until the sheath has been removed, for approximately six hours, or until your Cardiologist gives approval.

Alternatively, your doctor may choose to remove the sheath and use other measures to close the artery such as plugging them with collagen. In any case, you may have bruising and tenderness at the point where the sheath was inserted.

You will be monitored 12-24 hrs after the procedure and your vital signs checked frequently.

You will be monitored for recurring chest pains which could indicate that the treated artery is re-closing.

Your doctor will likely prescribe medications to prevent blood clots, relax your arteries and protect against coronary artery spasm. Certain medications will be given intravenously while you are in hospital.

#### Discharge

You will be reviewed by your doctor after the procedure. They will discuss the findings and the implications they have on your overall cardiac care when they see you prior to discharge or at a follow-up appointment.

Before leaving hospital, you will receive information about long-term therapy that may assist in preventing further coronary artery

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disease and instructions regarding when and to what extent you can resume normal activity. Heavy lifting and vigorous exercise should be avoided for several days to ensure that the arteries heal properly. Most patients return to work or their normal routine the week after their angioplasty.

It is normal to have a small amount of bruising, a small lump (about the size of a pea) and/or a small amount of pain where the sheath was inserted for the first week after the procedure.

If you have a lot of pain, a large lump or a large bruise you should have this reviewed immediately by your GP or Cardiologist.

Other symptoms that warrant urgent medical attention include the following:

- ◆ The catheter insertion site starts bleeding or swelling.
- ◆ You develop increasing pain or discomfort at the insertion site.
- ◆ You have signs of infection, such as redness, drainage or fever.
- ◆ There is a change in temperature or color of the leg or arm that was used for the procedure.
- ◆ You feel faint or weak.
- ◆ You develop chest pain or shortness of breath.

## Risks and Complications of Coronary Angioplasty

- ◆ Your artery can re-narrow within months, requiring further procedures, including surgery. Therefore it is important that you report any recurrent or unusual symptoms you may experience to your doctor.
- ◆ You may experience heavy bleeding, requiring a transfusion or other medical procedures
- ◆ Your artery may be damaged during the procedure, requiring emergency bypass surgery
- ◆ You may have a heart attack during the procedure, though large heart attacks are rare.
- ◆ The procedure does not fix the underlying cause of the blocked artery, which means this artery and other arteries can become blocked.
  
- ◆ Allergic reaction to iodine based dye
- ◆ Arrhythmias
- ◆ Bleeding at the insertion site
- ◆ Heart attack/stroke
- ◆ Infection at the insertion site
- ◆ Kidney Failure
- ◆ Ruptured artery (dissection)

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