

# Angioplasty

## Patient Information



## What is Coronary Artery Disease?

Coronary arteries are blood vessels that supply blood to the heart. Due to a number of reasons, such as age, high blood pressure (hypertension), diabetes and smoking, plaque (a sticky deposit made of fat, cholesterol and other substances in the blood) may develop in the arteries. The plaque causes a narrowing of the inner surface of the coronary artery that reduces or cuts off blood supply to the heart. When blood supply to the heart is reduced or cut off, the heart muscle gets damaged. The patient feels pain in the chest (angina) and, if severe, experiences a heart attack (myocardial infarction).

## What is an Angioplasty?

When the plaque builds up to the point of becoming dangerous, restoration of blood flow to the heart becomes necessary to prevent angina or heart attack. An angioplasty is a procedure to open up blocked arteries found during your angiogram. An angiogram is a procedure used to check where and which arteries are blocked.

During an angioplasty, a tube (catheter) with a special balloon goes into the blocked artery and the balloon is blown up. This pushes plaque against the walls of the artery and expands the artery. Another balloon, covered with a wire mesh (called a stent), is then put into the artery which allows the artery to stay open. This restored blood flow helps protect the heart from damage.

## When do you need a Planned Angioplasty?

If symptoms, tests or an angiogram show blockages in the arteries in your heart, your doctor may refer you for a planned (also known as elective) angioplasty to have the blockages opened up. Planned angioplasties are for patients who have stable angina which means the patient's chest pain goes away with rest or medication.

## When do you need a Primary Angioplasty (PCI-percutaneous coronary intervention)?

A primary angioplasty also known as PCI, is a lifesaving procedure and is the treatment of choice for patients who are having a sudden heart attack. This opens the artery and restores blood flow to the heart muscles right away, which reduces heart muscle damage during a heart attack. For best results, the primary angioplasty should be performed within 90 minutes of having a heart attack. The Aga Khan University Hospital offers primary angioplasty services 24 hours a day, everyday.

## What is a Stent?

A stent is a small wire mesh tube that looks like a spring. A stent:

- Stays permanently in the artery.
- Improves the blood flow through the arteries and to the heart muscle.
- Reduces the risk of blockage after the angioplasty.

There are three types of stents:

1. Bare metal stents - made of special metals such as cobalt chromium.
2. Drug-eluting stents (medicated stents)- metal stents coated with medicine that is released over time, helping prevent blockages and narrowing by the overgrowth of normal tissue within the stent.
3. A stent made of special material that releases medication and then dissolves over time.

Your Cardiologist will work with you to decide which stent will work best for you.

## Can my Stent get blocked?

Yes, your stent can get blocked. This is called "in-stent re-stenosis", and can happen because of:

- Some areas/ locations are more prone to getting blocked up again and this is where your stent needed to be placed.
- Smoking puts you at a greater risk of having problems with your stent. It is best to give up smoking, especially once you have had a stent put in.
- Stopping Medication. Antiplatelet medication helps prevent clots from developing in the stent. Do not stop taking your medicines without your doctor's advice.

## Can I have an MRI (Magnetic Resonance Imaging) with a Stent?

If possible, you should wait 6 weeks after your stent is placed before having an MRI. In case of an emergency, the emergency doctor will decide on the best course of action.

## Booking an Angioplasty

If you are an outpatient (visiting the clinic) your doctor will book your procedure and a nurse will give you your appointment date and time. They will share details about your angioplasty and how to prepare for it. You will also be directed to a financial counsellor who will facilitate you regarding the cost of the procedure.

If you are an inpatient (admitted in the hospital) your doctor will book your procedure and instruct the nurses about preparing you accordingly.

## Preparing for Angioplasty

- Stop eating and drinking 4 hours before your angioplasty.
- Bring all your medical records and doctor's prescriptions. You may be asked to get some new laboratory tests. These include PT, aPTT, INR, ECG and platelet count. Make sure you bring your angiography CD if you have one.
- Inform your doctor if you have any allergies or have had a bad reaction to any procedure in the past.
- Take your routine pills with a small sip of water.
- Tell your doctor, if you are taking any blood thinning or diabetes medications, as these may need to be stopped to prepare your system for the procedure.
- Leave your valuable items at home. Take off your rings, earrings, watch or other items that can get lost.
- Arrive at least 3-4 hours before the booking time for your angioplasty. Wear loose and comfortable clothing. If you need to get admitted overnight before your procedure, you will be informed by your physician.
- You will be asked to sign a consent form without which the doctor may not be able to perform the procedure. Make sure you understand the information before you sign the form. If you have any questions, please ask your doctor.

## During the Angioplasty

- Body hair will be removed at the catheter insertion site. This could be your groin or wrist.
- A nurse will put in an intravenous line in your arm. An intravenous line is a needle attached to a tube that is used to give fluids and medicines.
- One hour before the procedure you will be given medication that make you feel more relaxed.
- Sensors will be attached to your body to let the staff monitor your blood pressure and heart rate.
- Your groin or arm will be cleaned and then made numb (anaesthetized).



- A small cut will be made through which your doctor will put a tube into your radial (arm) or femoral (groin) artery to help guide a small balloon and stent into the narrowed part of your coronary artery.
- The balloon is inflated (blown up) for a few seconds. You might feel chest pressure or chest pain when the balloon is blown up. This is normal. The feeling will go away once the balloon is deflated and removed.
- The stent is then placed over the balloon and directed into the blocked area in the artery. When the balloon is inflated, the stent expands into the artery. The stent stays in place permanently, holding the artery open.
- You may be given Nitroglycerin during the procedure. This may give you a headache.
- During an angiography or angioplasty, you will be exposed to radiation and contrast dye. The benefits of the procedure outweigh the risks of radiation.

### After the Angioplasty

- You will be taken to recover in either the Cardiac Short Stay Unit or Coronary Care Unit (CCU).
- You can have someone visit you while you are resting, after the procedure. One attendant may wait in the designated waiting area.
- Your doctor may have additional lab tests and an EKG done during your hospital stay.
- If a tube has been inserted in your wrist, it will be removed at the end of the procedure.
- If the tube is in your leg, it will stay there for about 4 hours.
- When the tube is removed and you must apply pressure to the site for about 20 minutes. Even after the tube is removed you will need to lie straight in the bed for at least 4 hours. You are allowed to raise your head-side up to 30 degrees only.
- If you are uncomfortable or need to move, call the nurse for help.
- While you are resting:
  - Do not lift your head from the pillow or lie with your hands under your head. This can cause bleeding from the access site.
  - Do not bend your arm or leg of the access site. Bending your arm or leg can make you bleed. You can move your other arm or leg.
  - Do not cross your arms or legs. This can block the circulation to your feet and may cause bleeding.
  - Place your hand on your puncture site and apply pressure while you cough, sneeze or laugh.
- You must drink fluids. This will help remove the dye from your body.
- The nurse will help you stand and ask you to walk around when you are ready to move.
- The doctor will give you blood thinners to stop blood clots from forming in your stent and tell you how long you need to continue taking the medicine.

### Is an Angioplasty painful?

Before starting the procedure, your doctor will inject a local anaesthetic where the catheters will be inserted. You may feel a stinging sensation as this is done. However, after the medication takes effect, you should only feel dull pressure where your doctor is working with the catheters. If you still feel pain, please tell your doctor so you can be given additional medication.

### How long will I be in the Hospital?

Your doctor will decide if you can go home the next morning or if you need to stay in the hospital longer. Since you are not allowed to drive for up to 48 hours after the procedure, you will need someone to take you home and stay with you for at least 24 hours.

## What if my Angioplasty fails?

Your doctor may determine before or during the procedure that an angioplasty may not be safe or suitable for you. In that case, your doctor will talk to you and your family about other available options. This may include Coronary Artery Bypass Grafting or improving your medical therapy.

## Discharge Medications

Strict adherence to your medication is compulsory after the angioplasty. Although all your medications are necessary, you need to be particularly cautious about not skipping your antiplatelet medicines. Otherwise your stent might get blocked with clots. You will be given two anticipated drugs: Aspirin and Clopidogrel. Your nurse will explain your discharge medications to you. Go over these medicines and understand the dosage and frequency. Feel free to ask any questions about your medications.

## What are the Complications of Angioplasty?

Angioplasty is a relatively safe procedure. However, it may be associated with the following complications:

- The artery under treatment may become narrower or even close off completely during the procedure. This happens very rarely; however, should this occur, it may be possible to re-open the artery with the balloon catheter. Otherwise, immediate bypass surgery may be necessary to restore blood flow to the heart.
- There is also a small chance that the site where the catheter was introduced into the body, may start bleeding, or get infected or otherwise cause discomfort.

## Things to Look Out for After an Angiography

The following table highlights things you need to watch for:

Watch For:	How to Get Help:
Chest pain	<b>Come to Aga Khan University Hospital EMERGENCY immediately!</b> Take 1 antianginal (angised) every 5 minutes till the pain goes away. Do not take more than 3 doses.
Sudden bleeding at the puncture site Sudden swelling at the puncture site Changes in your speech or eyesight	<b>Come to Aga Khan University Hospital EMERGENCY immediately!</b> If you are bleeding, have someone apply firm pressure over the puncture site.
Increased pain at the puncture site Unbearable pain in your arm or leg Weakness, numbness or coolness in your legs	<b>Come to Aga Khan University Hospital EMERGENCY</b> Alternatively, make the earliest possible appointment for your doctor.
Redness, warmth or other signs of infection at puncture site	Visit your doctor at the earliest appointment possible.
Skin Rash	Visit your doctor at the earliest appointment possible. The rash may be caused by a reaction to your medicines or the dye given.

For all other queries contact 021-34861402 and you will be put in contact with the on-call doctor who will assess your problems.

## Follow up appointment

- The staff will schedule an appointment for you with your doctor one week after your procedure. You may be asked to get certain investigations which you will be informed about at the time of your discharge.
- Remove your bandage the morning after your angioplasty. Keep the area clean and dry.
- You can return to your normal activities slowly over the week following your procedure and can go back to work when your cardiologist tells you.
- Take showers instead of baths for one week after your angioplasty.
- You can resume sexual activities two days after your angioplasty.
- If you are driving for long periods, stop and stretch your legs often.
- If you drive a commercial vehicle, ask your doctor when you may go back to driving.
- Check with your cardiologist before travelling by air.

## Do NOT

- Drive for 48 hours after the angioplasty or as long as instructed by your doctor.
- Drive for 1 month if you have recently had a heart attack.
- Lift heavy weights, strain or physically exert yourself for 1 week.
- Walk, bend or climb stairs for as long as your doctor tells you to refrain.
- Go swimming or get into a hot tub for 1 week after your angioplasty.

## Why did the Doctor start me on an Antiplatelet Drug?

An antiplatelet is a medication that slows down the clotting of blood. It can prevent blood clots in someone with heart disease, who has had stents put in or has had an angioplasty. If you have a drug-eluting stent, you will have to stay on this drug for about one year.

## How to take this medication

- Your doctor will tell you when and for how long to take this drug.
- Please take it with food so you do not upset your stomach.
- If you forget to take a dose, take it as soon as you remember. However, if it is almost time for the next dose, only take the second dose and skip the missing dose. You should not take two doses at one time.

## Contact your doctor if you

- Develop a skin rash.
- Keep bruising easily.
- Have nosebleeds.
- Have red urine.
- Get recurrent diarrhoea, nausea, or upset stomach.
- Have black or bloody stools.
- Notice a change in the colour of your skin, eyes, or stool.

**Important:** Do NOT stop taking your Antiplatelet Drug before consulting your doctor; doing so may allow clots to develop and be extremely dangerous.

## What else can I do to improve my Heart Health?

The first step to a healthy heart after an angioplasty will be to go to a Cardiac Wellness and Rehabilitation class. During this class, you will set up your rehabilitation program. The program

includes detailed information and an exercise program designed just for you. You may take someone with you to these classes if you wish.

You will also have the opportunity to look at and discuss:

- Risk factors for heart disease.
- Guidelines for diet and exercise.
- The medications you take and why you take them.

### Healthy Heart Eating

- Limit saturated fats: choose low fat dairy products and lean cuts of meat.
- Limit hydrogenated fats: choose foods with the lowest amount of trans fats.
- Eat fish 2 to 3 times per week.
- Limit your salt intake.
- Increase fibre rich foods in your diet: enjoy whole grain bread and cereals and have seven or more servings of a variety of vegetables and fruits each day.

### Smoking

Quitting smoking is the best thing you can do to improve your health. When you quit smoking, you reduce your chance of getting heart disease, cancer and breathing problems right away.

When you smoke or are exposed to second-hand smoke, you increase your risk of developing heart disease and stroke. Smoking can:

- Build plaque in your arteries
- Increase blood clots
- Reduce the oxygen in your blood
- Increase your blood pressure, and make your heart work harder.

Once you stop smoking, your body can start to recover. It doesn't take long to see the effects.

Everyone who quits smoking sees benefits. Even those who have smoking-related problems like heart disease, can benefit.

### When you quit smoking

- Within 20 minutes, your blood pressure may drop to normal level.
- In 8 hours, your oxygen levels increase in the blood.
- In 24-48 hours, your chances of having a heart attack go down and your sense of smell and taste begin to improve.
- In 1-3 months, your circulation improves, you may walk faster and your lung function may increase up to 20 percent.
- In 1 year, your risk of having a smoke-related heart attack is cut in half.
- In 15 years, your risk of heart attack is the same as someone who never smoked at all.