



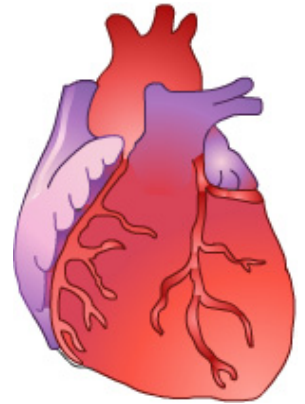
## *X-Plain* *Coronary Angiography and* *Possible Angioplasty* **Reference Summary**

### **Introduction**

Sometimes people have serious problems with their heart and the arteries that go into it.

An angiogram helps doctors look at the blood vessels of the heart. If needed, an angioplasty can also be done. An angioplasty opens arteries that are too narrow for adequate blood flow.

If your doctor recommends a coronary angiogram and a possible angioplasty, the decision whether or not to have the procedure is also yours.



This reference summary will review the benefits and risks of this procedure.

### **Anatomy**

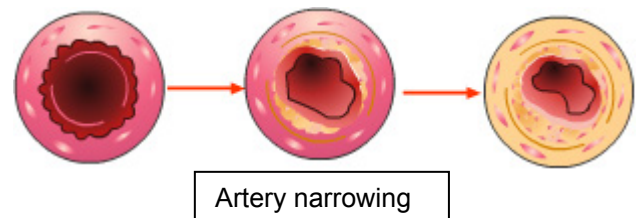
The heart is the most essential muscle in the body. Its main function is to pump the blood to the lungs and to the rest of the body. Since the heart is living tissue, it needs blood like the rest of the body.

The heart pumps blood to itself through many blood vessels that go directly to the heart muscle.

These are known as coronary arteries.

### **Symptoms and Their Causes**

Cholesterol deposits accumulate in the coronary arteries forming a “plaque” that narrows the artery. Narrowed arteries do not let enough blood go through. This causes blood flow to decrease, which can cause heart attacks.



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If cholesterol deposits reduce blood flow enough, the heart will not be able to keep up with exertion. If the condition worsens or the coronary arteries become blocked, the heart can be damaged.

An angiogram is a test that helps doctors see any plaque in the coronary arteries and helps detect any narrowing or blockage. Other tests such as EKGs or heart tracings and special CAT scans can cause the doctor to suspect blockage in the coronary arteries. However, these tests do not show the blood vessels.

A coronary angiogram is the only reliable test that shows the blood vessels of the heart.

### **Procedure**

Your healthcare provider may ask you not to eat or drink for several hours before the procedure. If your surgery is in the morning, this usually means no food or drink after midnight the night before.

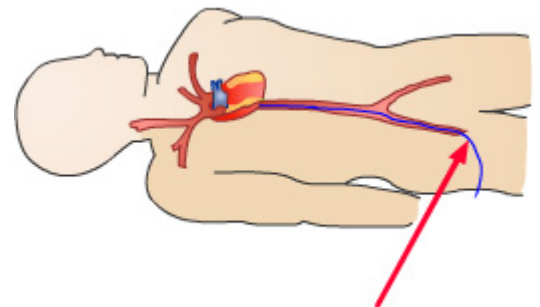
During an angiogram, the doctor inspects the coronary arteries for blockage. If the angiogram shows blockage, while tubes and other instruments are in place, the doctor can correct it with an angioplasty or with an alternative procedure.

If the angiogram does not show blockage of the arteries, the angiogram may be done on an outpatient basis, meaning you will be able to go home after the test is completed. This procedure is done while you are awake. There is virtually no pain involved.

During the procedure, the heart rate, blood pressure, and vital signs are continuously monitored. You will be asked to lie down on an x-ray table.

The groin area is disinfected and made numb with a local anesthetic.

A catheter is inserted into the artery through the skin in the leg and threaded all the way up into the coronary arteries. Depending on the doctor's preference and the state of your arteries, the catheter may be inserted in a big



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artery in the underarm or the upper arm instead of the groin. Dye is then injected in the arteries, and x-rays are taken. You should stay very still during the x-rays to allow sharp pictures to be taken. If a blockage is found, the doctor will decide whether it can be opened using either a balloon or another device. The procedure that uses a balloon is called an angioplasty.

The balloon is attached at the end of the catheter and is threaded up to the area of the blockage through the artery used for the angiogram.

The balloon is then inflated to break up the plaque, which widens the artery allowing more blood to flow through. The balloon is then deflated and withdrawn.

Following the angioplasty, your doctor may choose to place a stainless steel mesh tube called a “stent” at the site of the blockage to keep it open. If a stent is used, it is attached at the end of the catheter and placed at the site. A stent may also be used without a balloon to open up a blocked artery.



Balloon Angioplasty

Another way to open blocked arteries without angioplasty is a small, mechanical device, instead of a balloon, that breaks the plaque into pieces. This decision is made by the doctor at that time. In addition to breaking up the plaque, a stent could be placed.

After the angiogram with or without angioplasty, the catheter is taken out. In order to prevent bleeding from the puncture site, you will be instructed to lie flat and not bend your leg. If your cardiologist uses a closure device, you will lie flat for about 1 hour; if not, you will lie flat for up to 8 hours. You should not bend the leg on the side of the groin that was catheterized. You will probably not be able to drive and will therefore need somebody to drive you back home.



Stent in Artery

## Risks and Complications

This procedure is safe. There are, however, several possible risks and complications. These are very unlikely, but possible. You need to know about them just in case they

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happen. By being informed, you may be able to help your doctor detect complications early.

The angioplasty may not succeed in relieving the blockage. Even if relieved, the blockage could happen again, or the stent could get moved out of position. This could cause a heart attack.

X-rays are used during this procedure. The amount of radiation during this test is deemed safe. However, this same amount could be dangerous for unborn children. It is therefore very important to make sure you are not pregnant before you have an elective radiological test. Pregnancy tests can be performed when in doubt.

The coronary angiogram can, rarely, lead to a heart attack, requiring an unforeseen angioplasty or even an open-heart surgery. Rarely, the catheter placed in the artery can injure that artery or other arteries of the body. This may cause decreased blood flow to the leg or arm involved, which may require an operation to reestablish blood flow.



The insertion can also cause injury to a nerve in the leg or arm, depending on where the initial puncture was done. Some people have allergies to the iodine dye used in this test.

Make sure to tell your doctor about your allergies and about any past reactions you have had to any type of dye used on you in the past. In some people, dye can cause kidney failure. Let your doctor know if you have a kidney problem. You might be at a somewhat higher risk.

Kidney failure is more likely in patients taking glucophage, a diabetes medication. It is important that you inform your doctors about all the medications you are taking.

### **After the Angiogram**

If your cardiologist uses a closure device, you will lie flat for about 1 hour; if not, you will lie flat for up to 8 hours. You should not bend the leg on the side of the groin that was catheterized.

The nurse will give you discharge instructions, which include a number to call in case of an emergency. Make sure to call this number in case of any new symptoms such as redness, fever or numbness, weakness, swelling or bleeding at the puncture site.

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If you experience chest pain, you should go to the ER.

You should also go to the nearest emergency room if you have difficulty breathing, arm pain, or irregular heart beat.

## Summary

A coronary angiogram test helps your doctors look at the blood vessels of the heart. In this procedure, the doctor injects dye into the coronary arteries so that they can be x-rayed. An angiogram is the best way to find out if arteries are blocked or restricted by plaque.

If a coronary artery is blocked, your doctor may recommend a coronary angioplasty. A coronary angioplasty is a procedure that allows your doctor to open narrowed arteries of the heart. This procedure uses a balloon to open arteries so that blood flow to the heart can be increased.

Coronary angiograms and angioplasties are very safe. Risks and complications are very rare. Knowing about them will help you detect them early if they happen.



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