Coronary Angiography and Angioplasty

Coronary angiography is a procedure for helping diagnosis of possible blockages in coronary arteries or in veins or arteries of a past bypass.

Under local anaesthetic, a fine tube is passed into a femoral artery in the groin and along the body's arteries to the coronary arteries. A dye is injected to give an X-ray picture of the blood flow and arteries, indicating any narrowing.

Nowadays (2008) this can be done in a single day – so the patient is a day patient and able to return home perhaps a couple of hours after the operation for recuperation and treatment in the hospital cardiac day ward.

Coronary angioplasty and stent insertion

This involves inflating a balloon inside the narrowed section of a coronary artery to enlarge or open it to improve the blood flow to the heart muscle. Usually also, a stent is inserted to keep the artery open.

If you, the patient, have a blocked or narrowed coronary artery, or have had previous bypass graft surgery and your graft has become narrowed, it may thus be possible to correct the problem without major heart surgery.

The balloon is sausage-shaped and very small. It is attached to the end of a very fine catheter, known as the angioplasty catheter. The consultant uses a guide catheter and a fine hair-like guide wire to help place the angioplasty catheter in position. A local anaesthetic is usual.

The consultant inserts the guide catheter into a femoral artery in your groin, or sometimes an artery in the arm or wrist. He /she moves it up to the heart under X-ray guidance. When the guide wire is in place across the blockage or narrowing, the balloon is threaded along until in the correct position, and inflated to stretch the artery and/or squeeze and disrupt the material blocking it.

You may feel some pain when the consultant inflates the balloon because this temporarily blocks the blood flow through your artery. This pain should ease as soon as the balloon is deflated again.

After this has been performed once it is normal to insert a stent. This is like a small, coiled spring that is placed using the angioplasty catheter in the blocked or collapsed section of the artery. When it is released from the catheter, the spring expands and holds the artery open.

Since 2002 it became almost universal to use some form of stent in every procedure performed. Since then, only in rare cases do the consultants perform only an angioplasty.

Coronary angioplasty – Success

Angioplasty is successful in 95% of patients. Normally you will have to stay in hospital 12 to 24 hours following the procedure; or you may be able to go home at the end of a long day as a day patient. By contrast, in the late 1990s success was about 90% and a stay of one to two days was typical.

In about one in every 100 cases the artery may become blocked and threaten serious damage to the heart. An emergency CABG operation may then be recommended.

Occasionally angioplasty fails to achieve the desired result but no damage is done. If this is the case the patient will often be referred for surgery, but will not need an immediate operation.

The table compares the success of stents and coronary artery bypass grafts (CABG) for past patients. The risks are higher for patients treated urgently – in emergencies and/or to save life.

	CABG	Angioplasty & bare metal stent	Angioplasty & drug eluting stent
Anaesthetic type	General anaesthetic	Local anaesthetic	Local anaesthetic
How long in hospital	5 to 10 days	1 to 2 days	12 to 24 hours
How many patients needed a repeat later	5% to 10%	25% to 30%	0% to 5%

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