

CARDIOLOGY

Unblock your heart

Read on for the key differences between the two techniques used in the treatment of blocked coronary arteries – coronary angioplasty and coronary artery bypass surgery.



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Coronary arteries are blood vessels that supply oxygen-rich blood to the heart muscles. Coronary heart disease (CHD) occurs when there is a build-up of plaque in the coronary arteries – a condition known as atherosclerosis. Over time, the arterial walls get narrowed or blocked and blood flow to the heart muscle is reduced. As such, the heart becomes starved of oxygen which can lead to a heart attack.

What is coronary angioplasty?

A coronary angiogram (cardiac catheterisation) is done by inserting a catheter into a blood vessel in the groin or wrist. The catheter travels through the blood vessel until it reaches the coronary arteries. A dye containing iodine is injected, allowing the arteries to become visible on a digital X-ray screen.

During coronary angioplasty, a tiny balloon moves through the catheter and inflates to widen the narrowed artery. Angioplasty is often combined with the placement of a small wire mesh tube called a stent that pushes plaque against the arterial wall to prevent small plaques from breaking off (which can lead to heart attacks) and the coronary artery from re-narrowing. In some cases, the doctor may use a small vacuum-like device to suck out blood clots.

Pros and cons of angioplasty

Angioplasty can improve symptoms such as chest pain and shortness of breath. It is also used during a heart attack to quickly open a blocked artery and reduce the damage to your heart.

Cells lining the coronary artery grow through and around the stent to secure it. However, stents may form scar tissue that can re-

narrow the artery and block blood flow. Hence, drug-eluting stents have been developed to prevent scar tissue from growing into the artery. Biodegradable stents have also recently evolved.

After angioplasty, you will need to take aspirin and another antiplatelet medicine (such as clopidogrel) to prevent another heart attack or a stroke. Patients with a drug-eluting stent will need to take the medicines for at least a year, while patients with a bare metal stent will need to take both medicines for at least one month (up to one year) and will likely be on aspirin indefinitely.

What is coronary artery bypass surgery?

Coronary artery bypass graft surgery (CABG) is a surgical procedure that diverts blood flow around the blocked artery via another piece of blood vessel. A healthy blood vessel is taken from the leg, wrist or chest, and attached above and below the blocked artery, thus allowing the blood to bypass the area and be rerouted to the heart muscle.

The traditional 'open heart' approach is to open up the chest through long incisions, while the heart is stopped for a time. Tubes are inserted so that blood is pumped through the body via a cardiopulmonary bypass machine (heart-lung machine) during CABG.

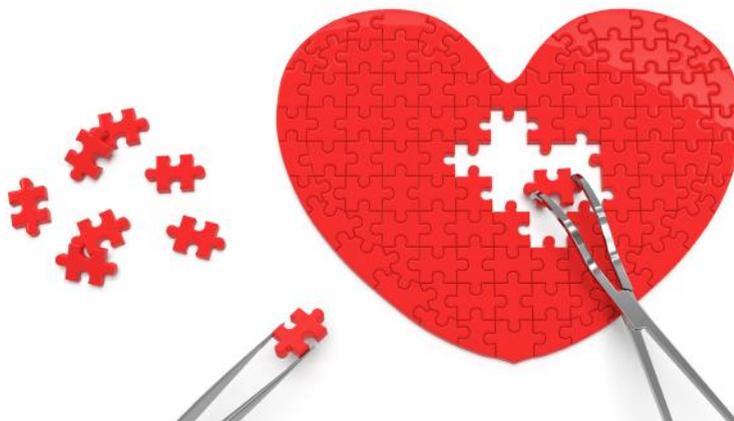
Less invasive techniques have also evolved over the years. These include off-pump surgery (procedure is done on a still-beating heart), port access or keyhole surgery (bypass is performed through a small incision, often with the use of robotics and video imaging), and endoscopic vein and radial artery harvesting (blood vessels used for bypass are located with an endoscope).

Pros and cons of CABG

Possible complications that may occur during or after CABG include arrhythmias, blood clots, stroke, kidney problems, pneumonia and infection at incision site.

CABG improves heart function and reduces the risk of dying from heart disease. Most people remain symptom-free for as long as 10-15 years, if they continue to look after their medical comorbidities. As CABG does not cure underlying coronary artery disease, it is likely that other arteries or even the new graft may become clogged in future.

Long-term results depend on your diligence in taking medication to prevent blood clots, lower blood pressure and cholesterol levels, and control diabetes. You should also maintain a healthy diet and weight, exercise regularly and quit smoking. 



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