

Cardiac Surgery: Coronary Artery Disease

Your care team may have discussed the need for surgery with you. This brochure will help you to better understand coronary artery disease and what to expect

*If you have
questions, ask
your care team.*

Coronary artery disease

Coronary artery disease (CAD) affects the arteries of the heart. Figure 1 shows some of the main arteries. CAD happens when the arteries become clogged with plaque. Plaque is made up of fat, cholesterol and calcium that collect in the arteries. As plaque builds up, the wall of the artery becomes rough, hard and narrowed over time (Figure 2). This is known as atherosclerosis. It decreases blood flow to the heart muscle. If the blood flow is decreased, the heart muscle does not get the oxygen and nutrients it needs to function at its best. This can cause damage to the heart muscle.

CAD is the leading cause of death in the United States.

Figure 1. Coronary arteries

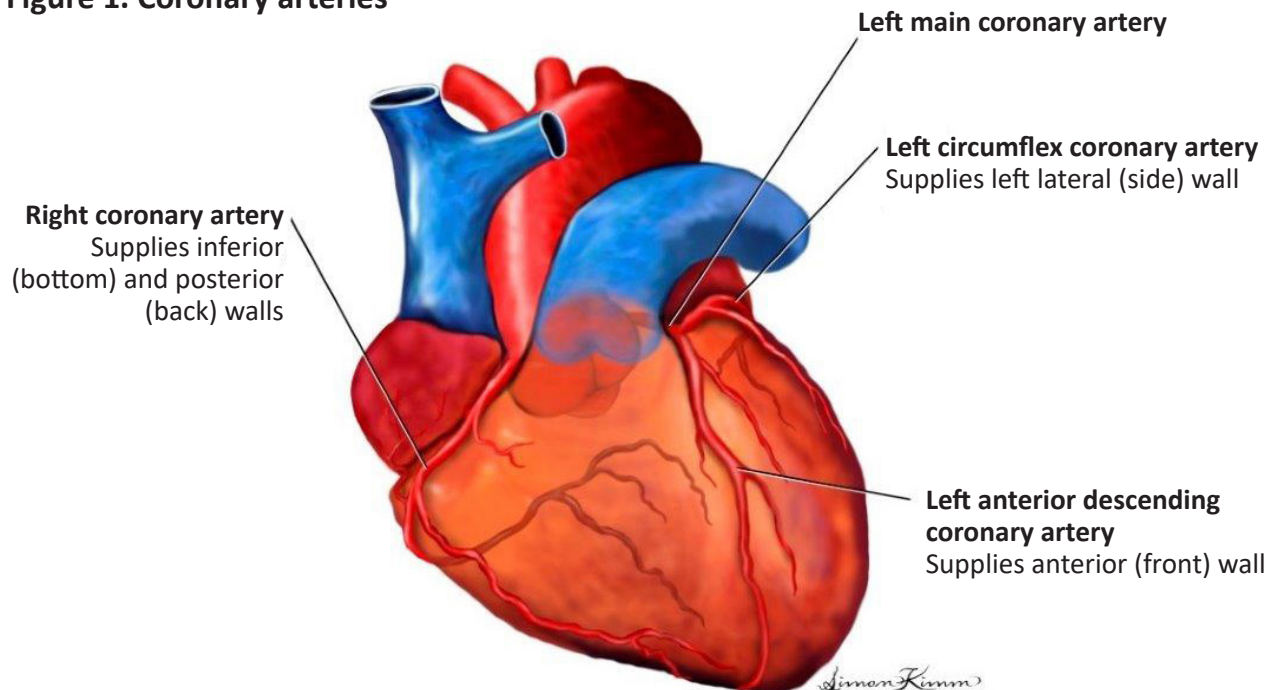
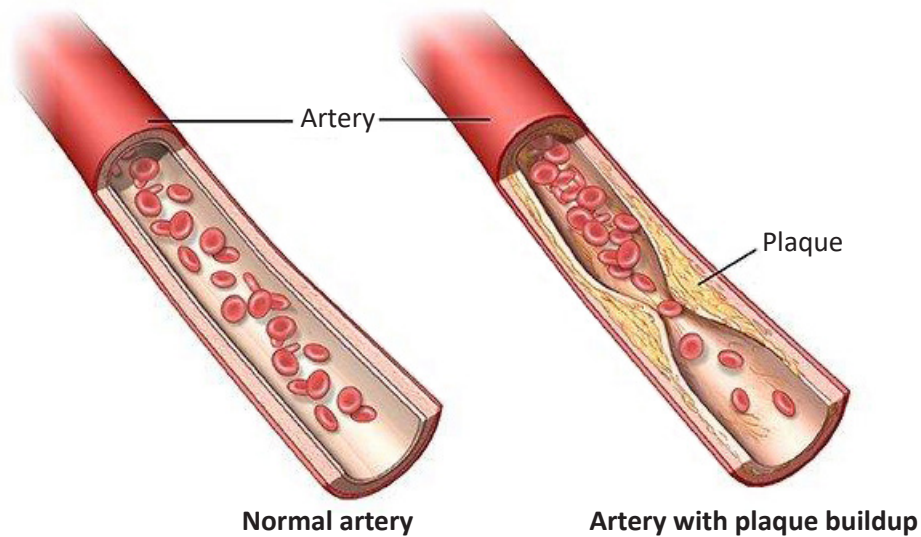


Figure 2. Atherosclerosis



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Risk factors

Some common risk factors for CAD include:

- Obesity
- Smoking
- Diabetes
- High blood pressure
- Family history of CAD
- High blood cholesterol levels
- Being older than 45 (for men)
- Being post-menopausal (for women)

With the exception of family history, age and menopause, most of these risk factors can be controlled and modified with a heart-healthy lifestyle.

For more information about CAD risk factors, go to the American Heart Association's website at heart.org.

Symptoms

With CAD, you may have one or more of these symptoms:

- Nausea
- Dizziness
- Sweating
- Weakness
- Shortness of breath
- Chest pain or angina
- Skipped or fast heartbeats (palpitations)

Angina

The most common symptom of CAD is a type of chest pain called angina, which happens when the heart muscle is not getting enough oxygen and nutrients. Angina is often felt in the chest and is described as:

- A squeezing sensation
- Sharp or crushing pain
- Heaviness, fullness, aching or burning

Angina pain also may be felt in your shoulders, neck, throat, jaw or back. Angina symptoms often get worse during activity. Other symptoms of angina may include:

- Nausea
- Sweating
- Difficulty breathing
- Extreme fatigue or weakness

These symptoms are more common in women and in patients with diabetes.

If untreated, angina may lead to a heart attack (myocardial infarction).

Heart attack

A heart attack is an injury to the heart muscle. Injury happens when plaque breaks in a coronary artery. A blood clot forms around the breakage and may block the blood flow to the heart muscle. Heart muscle that no longer gets enough blood flow can have permanent damage or tissue death, known as scarring. Scarred heart tissue cannot work properly, which may lead to heart failure, arrhythmias or death. Untreated, gradual buildup of plaque over time can also cause heart failure and arrhythmias.

If you have signs or symptoms of CAD, tell your physician right away. Your physician will want to order tests such as an electrocardiogram (ECG), echocardiogram, exercise stress test and/or cardiac catheterization for you.

Coronary artery bypass surgery

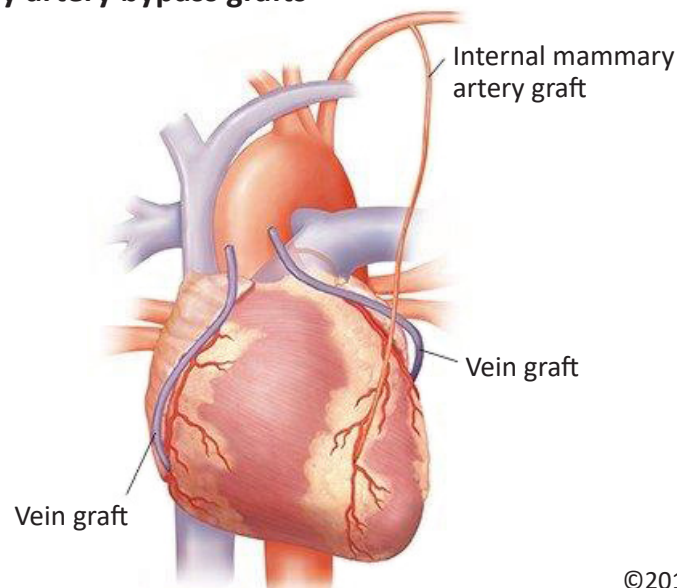
The treatment for CAD aims to restore blood flow to the heart muscle. A way to do this is with a coronary artery bypass graft (CABG). A CABG creates a detour or bypass around the blocked part of the artery. This brings oxygen-rich blood back to the heart muscle. The surgeon uses arteries or veins from other parts of your body to create the bypasses, also called **grafts** or **conduits**. There are 3 blood vessels in your body that surgeons most commonly use as a conduit.

- Internal mammary artery
- Radial artery
- Saphenous vein

The internal mammary artery lies along your breastbone on the inside of the chest wall under your ribs. There is one internal mammary artery on each side of the breastbone.

Using an internal mammary artery to bypass your heart will not affect the blood supply to your chest. Figure 3 shows how the internal mammary artery is grafted on to the heart.

Figure 3. Coronary artery bypass grafts



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The radial artery is 1 of 2 arteries found in your forearm. You will have tests to check what the blood flow to your arm will be if the radial artery were removed. Let your surgeon know if you have a history of circulation problems to the hands, such as:

- Raynaud's syndrome
- Repetitive stress or carpal tunnel syndrome
- Pain in your fingers when the weather is cold

A saphenous vein is located on the inside of the leg, from the ankle to the groin. The blood flow to the leg is not affected when this vein is removed. However, it is common for the leg or foot to swell slightly after surgery. Wearing a compression stocking can reduce the swelling. Ask your physicians if you should wear a compression stocking after surgery.

Endoscopic vessel collection

The surgeon can remove the radial artery or the saphenous vein with a method called endoscopic vessel collection. The surgeon makes very small incisions in the limb. They use special instruments to remove the healthy blood vessel that they will use as a graft.

Your surgeon will review your health history and tests, including your cardiac catheterization results, to determine:

- Where the blockages are in your heart arteries
- How many grafts you may need
- Which of your arteries or veins they will use to create the bypasses

Before your surgery, your surgeon will discuss your plan of care, and explain the available treatment options. They will answer any questions that you may have.