

DISEASE PROCESS:

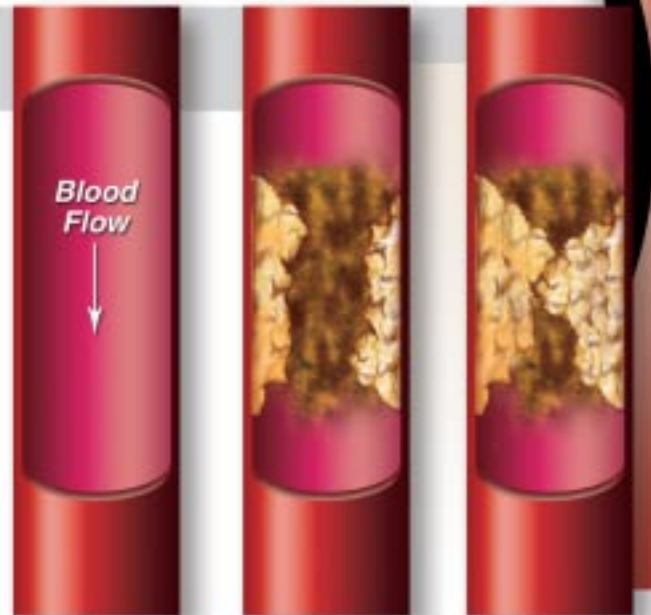
Acute Myocardial Infarction (AMI)

HEART ATTACK

The heart is a muscle that requires a constant supply of oxygen-rich blood in order to work. This blood is supplied by blood vessels on the surface of the heart called coronary arteries. Healthy **coronary arteries** are like hollow tubes through which blood flows. (Fig. 1.1) Fats and other substances in your blood stream can build up in the blood vessels and narrow arteries. **This is called coronary artery disease (CAD).** (Fig. 1.2)

There may be no signs or symptoms of CAD before a heart attack occurs or there may be symptoms such as chest pain. When the heart muscle can't get enough blood it cramps. **Chest pain or angina** is pain, pressure and/or tightness in your chest, neck, jaw or arms. Sometimes shortness of breath, tiredness or dizziness can be symptoms of coronary artery disease.

The fatty build-up in coronary arteries harden. When cracks occur in this hardened build-up, clots can form. (Fig. 1.3) If a blood clot blocks the narrowed artery, the heart muscle is deprived of blood in the area below the blockage causing damage to the heart muscle. **This is called a heart attack or a myocardial infarction (MI, for short).** (Fig. 2)

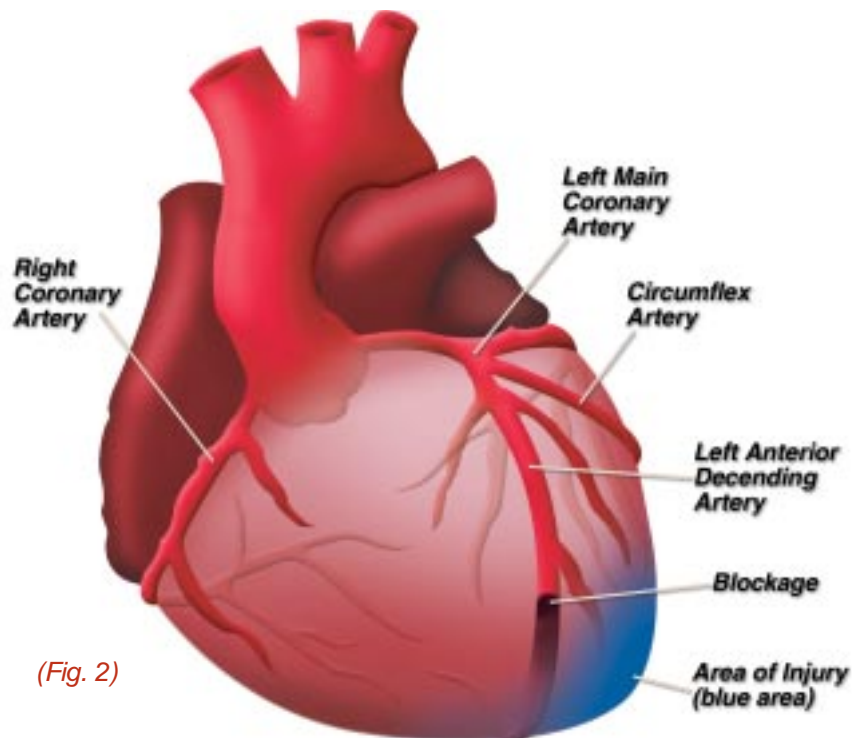


(Fig. 1.1)
Open Artery
Blood flow is normal.

(Fig. 1.2)
Narrow Artery
Blood flow & oxygen are reduced.

(Fig. 1.3)
Blocked Artery
Blood flow & oxygen are blocked by a blood clot.

The amount of damage to the heart muscle depends on the size of the area supplied by the blocked artery and the time between the injury and treatment. Quick treatment to open the blockage is very important to decrease the amount of damage. After a heart attack, the heart muscle will heal, leaving a scar. The scarred area does not pump as well as healthy heart tissue does.



(Fig. 2)

SYMPTOMS OF A HEART ATTACK:

- Chest Pain
- Shortness of Breath
- Pressure, Tightness or Crushing Feeling in the Chest
- Pressure or Pain of the Chest Radiating into the Neck, Jaw, Teeth, Shoulders and/or Arms
- Sweating or Clammy Feeling
- Nausea and/or Vomiting
- An Irregular or Rapid Heart Rate
- Lightheadedness, Dizziness and/or Disorientation
- Palpitations – Feeling the Heart Flutter or Feeling The Heart Pound

Women's symptoms may vary slightly

- Women may feel anxiousness, sense of doom or fear of death.
- Women may have less pressure and chest pains.
- Women may have stomachache or pain, and the feeling of indigestion and other discomforts.

If these symptoms occur, **SEEK IMMEDIATE MEDICAL ATTENTION.**

TREATMENT OF A HEART ATTACK:

TESTS

- An **electrocardiogram (EKG)** gives a record of the electrical activity in your heart. During and after a heart attack there can be changes in your EKG that can help diagnose a heart attack.

- Certain **blood tests**, called **cardiac enzymes**, can show substances released into your bloodstream after a heart attack.
- A **chest x-ray** will be done to rule out other conditions that could mimic a heart attack and to see if the lungs have fluid in them.

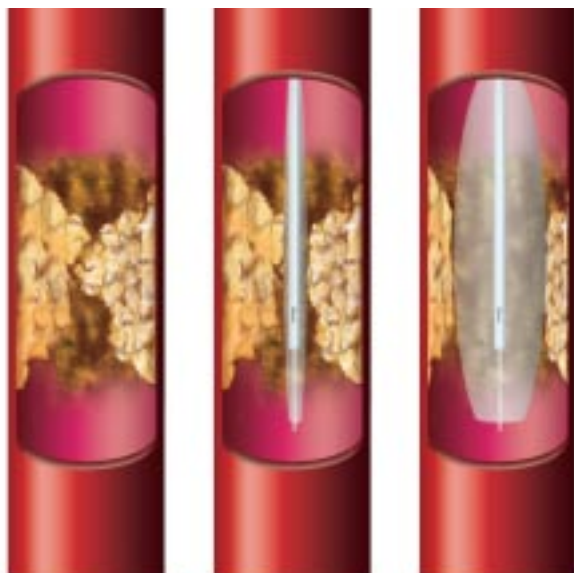
INTERVENTIONS

- Oxygen will be given to you. Breathing extra oxygen will help get more oxygen to your heart.
- Nitroglycerin is used in spray form, tablets placed under your tongue or through I.V. Nitroglycerin may be given to open your coronary arteries. This allows more blood to your heart and relieves some of the discomfort experienced with a heart attack.
- Blood thinners such as aspirin and other medications may be given to prevent blood clotting and to make it easier for blood to get through narrowed arteries.

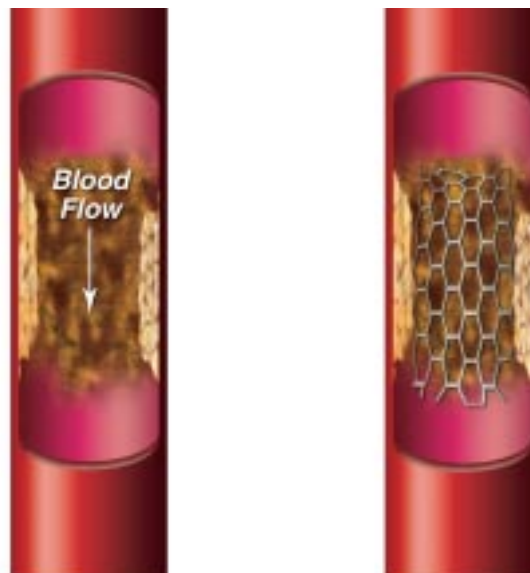
RESTORING BLOOD FLOW TO THE HEART AS SOON AS POSSIBLE IS CRUCIAL

To restore blood flow to the heart, a **medication called a thrombolytic** may be given to you. These medicines actually dissolve blood clots and can open up coronary arteries. These drugs are beneficial only if heart attack symptoms have been present for less than 12 hours. Not everyone can be given this medication, for example patients with a history of strokes, bleeding problems, severely high blood pressure or stomach ulcers.

In most cases the best way to determine blood flow is to perform a **coronary arteriogram**, a test performed by a



(Fig. 3)
Balloon procedure opens the artery.



(Fig. 4)
Stent keeps artery open.

cardiologist to locate which artery is blocked. Then a procedure called **percutaneous transluminal coronary angioplasty (PTCA, for short)** can be performed. PTCA uses a small balloon on the tip of a long flexible tube that is threaded into the blocked artery. The balloon is inflated and deflated until the blood vessel is open enough to improve blood flow. (Fig. 3) Sometimes a small stainless steel or titanium mesh tube called a stent is placed inside the artery, after the PTCA balloon opens the artery to help hold it open. The stent stays in permanently and the artery heals around the stent. (Fig. 4) Sometimes there are blockages that cannot be relieved by thrombolytics or PTCA. In those cases, **open-heart surgery** may be required. During this surgery, veins from your legs and/or the chest wall are taken and sewn onto the heart **bypassing** around the areas that have blockages. This surgery is called **coronary artery bypass grafting (CABG, for short)**.

AFTER YOUR HEART ATTACK

In most cases your doctor will prescribe these medications:

Aspirin – to prevent blood clots and decrease the risk of another heart attack or stroke.

Beta-blocker – to help decrease the workload of your heart and decrease your chance of another heart attack.

ACE-inhibitor – to lower your blood pressure, to decrease the workload of your heart and to help prevent heart failure and other complications.

Plavix – a blood thinner used if a stent is placed. It is very important that you take this medicine as directed by your doctor.

Cholesterol lowering medication – may be ordered if you have high blood cholesterol.

Nitroglycerin – tablets or spray may be prescribed for chest pain or pressure. One tablet or spray should be self-administered if you are having chest discomfort. If this does not relieve the pain, repeat up to two more times at five



minute intervals. If chest discomfort continues, go to the nearest emergency room. Once a bottle of Nitroglycerin tablets is open, they should be protected from light, kept in their original airtight container and stored in a dry cool area. Be sure and check the bottle for an expiration date as well.

A NEW LEASE ON LIFE

After a heart attack, you can make changes in your life that can prevent further coronary artery disease and decrease the risk of another heart attack. These same changes are also just what the doctor ordered for cancer prevention, stroke prevention, diabetes and high blood pressure.

If you smoke – stop. Smoking increases your risk for heart disease. Smoking constricts the blood vessels of your heart and the rest of your body and makes blood clots more likely to form.



Decrease your cholesterol. Eat more fruits, vegetables, whole grain breads and cereal. Choose small portions of lean meats. Select non-fat or lowfat dairy foods. Use small amounts of vegetable oil, low-calorie margarine, nuts and seeds. Avoid animal fats (meat fat, butter fat), shortening (hydrogenated fat), and foods prepared with these fats.

Control high blood pressure. High blood pressure can damage the linings of coronary arteries and this can lead to coronary artery disease. Take prescribed blood pressure medications, get your blood pressure checked regularly, eat a healthy diet and limit your salt intake.

Exercise. It lowers cholesterol, blood pressure, excess weight and excess blood sugar. It also boosts your mood and energy levels.

If you are diabetic, control your blood sugar. Aim to keep it at normal levels: before meals 80 to 120, and after meals less

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than 140. High blood sugar is linked to the development of coronary artery disease. Follow-up with your doctor to keep your blood sugar controlled with diet, medications and exercise.

If you are overweight, lose weight. Your heart has to work harder when you are overweight. Excess weight increases your risk of high blood pressure, diabetes, and coronary artery disease. A healthy diet and exercise are the best ways to lose weight and keep it off.

Manage stress, anger and depression. These lead to increased risk of heart disease and heart attack. Exercise, counseling, hobbies, yoga, meditation, stress management classes, religion, positive social relationships and even medications can help. Talk to your doctor.

