

HEART ATTACK, THE DAMAGE TO HEART MUSCLE

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ABSTRACT

Heart attack is a disease that occurs when there is impulsive thorough blockage of an artery that supplies blood to an part of any individual heart. A heart is organ which needs a good blood amount to keep it fit. When we become older with aging the straight inside walls of the arteries that stream the blood to the heart can convert and damaged get narrow owing to fatty materials un wanted collestreal named plaque. When an part of plaque halts, blood cells and additional portions of the blood branch to the injured area and generates blood clots. A heart attack happens after a blood clot fully chunks the movement of blood and extremely diminishes blood flow to the heart muscle. This correspondingly marks in patients facing chest pain certain parts of the heart muscle starts to die. A heart attack is the demise of a section of heart muscle affected by a loss of blood stream. The blood is frequently cut off when an artery providing the heart muscle is jammed by a blood clot. A heart attack is occasionally called a myocardial infarction (MI), acute myocardial infarction, coronary occlusion even some time coronary thrombosis.

KEYWORDS: Heart attack, arteries, blockage of an artery, myocardial infarction, chest pain, coronary occlusion, coronary thrombosis.

INTRODUCTION

A heart attack is the disease that cause the death of a part of heart muscle triggered by a loss of blood quantity. The blood is frequently cut off when an artery providing the heart muscle is congested by a blood clot. A heart attack ensues when our heart muscle is famished of oxygen-rich blood that requird for smooth functioning of heart. This damage to our heart muscle and lethatl to blood pumping system. The extended the blockage time untreated, the more the heart muscle would be damaged. If the blood movement is not reinstated quickly, the injury to the heart muscle is permanent and life threatening^[1,3]

Every 34 seconds, somebody dies from heart and blood vessel sicknesses around the world and it is America's No. 1 killer, most of those demises are from coronary heart disease.

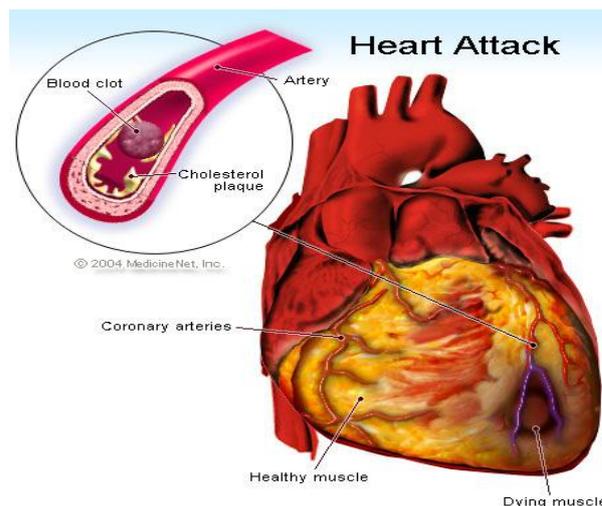


Fig. 1: Heart attack.

Causes a Heart Attack

The heart is a muscle and a body organ like any other part in the body. Arteries source it with oxygen-rich blood therefore it can indenture and thrust blood to the rest of the body. Once there isn't enough oxygen movement to a muscle, its role begins to suffer. Chunk the oxygen source wholly, and the muscle starts to perish.^[4,5]

Causes

- Heart muscle gets its blood supply from arteries that create in the aorta just as it plants the heart.
- The coronary arteries route laterally the surface of the heart and supply oxygen-rich blood toward the heart muscle.
- The right coronary artery provisions the right ventricle of the heart and the lesser (lower) portion of the left ventricle.
- The left anterior descendent coronary artery provide the majority of the left ventricle, while the circum flex artery materials the backbone of the left ventricle.^[6,7]
- The ventricles are the inferior chambers of the heart; the right ventricle drives blood to the lungs and left pumps it to the other part of the body.
- With time, plaque can figure up along the course of an artery and narrow the channel finished which blood movements. Plaque is complete up of cholesterol buildup and finally may harden calcium deposits. If the artery develops too narrow, it cannot stock enough blood to the heart muscle when it becomes harassed This pain is called angina. It is significant to distinguish that angina can manifest in many different ways and does not continuously need to be qualified as chest pain.^[8]
- If the plaque disagreements, a small blood clot start to develop within the blood vessel, acting like a barrier and intensely obstructive the blood flows outside the clot. When that part of the heart loses its blood source totally, the muscle expires.^[9,10] This is called a heart attack, or an MI - a myocardial infarction (myo=muscle +cardial=heart; infarction=death due to lack of oxygen)

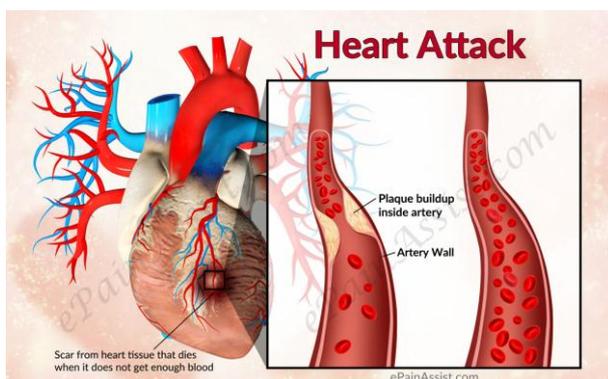


Fig. 2: Heart attack and myocardial infarction.

Symptoms of Heart attack

A cardiac arrest or heart attack occurs when our heart stops propelling blood around our body. Though a heart attack can outcome in a cardiac arrest, If Somebody who has had a cardiac arrest will be insentient and won't be able to breath normally. Most heart attacks are produced by coronary heart disease.(CHD) is when our coronary arteries which means the arteries that source our heart muscle with oxygen-rich blood) develop narrowed by a slow build-up of fatty material within their walls. Heart attack al so labelled as acute coronary disorder,

myocardial infarction (MI) or coronary thrombosis. Other fewer sources of a heart attack comprise spontaneous coronary artery dissection(SCAD) where one or more of the coronary arteries slit.^[11-12]

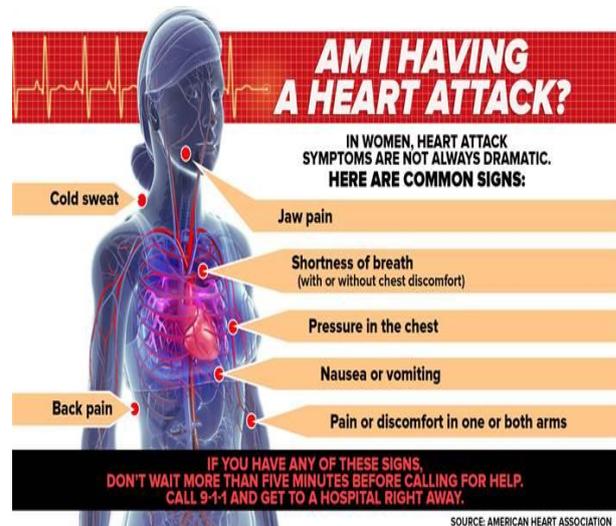


Fig. 3: Symptoms of heart disease.

- Throughout a heart attack, the heart muscle misplaces blood supply and is damaged.
- Chest discomfort and pain are collective indications.
- The danger of a heart attack upsurges when a man is finished 45 and a woman is completed 55.^[13,14]
- Common symptoms are chest discomfort like tightness, bulky, agony or a burning sensation in our chest
- aching in arms, neck, jaw, back or stomach many people feel pain or tightness unbearable while other people just feel uncomfortable
- sweltering
- feeling light-headed
- develop short of breath
- also susceptible people senses nauseous or vomiting condition

Complications of myocardial infarction

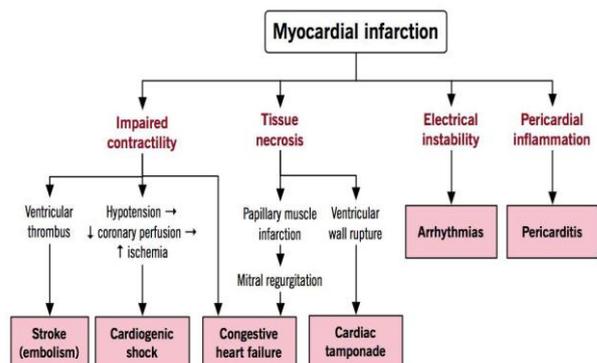


Fig. 4: Complication of MI Myocardial infarction.

Affording to the CDC's National Center for Health Statistics, heart disease has outdone the list of deadly diseases every year since 1921 heart attack is instigated

by the build-up of fatty materials, cholesterol, calcium and other materials that mark up plaque. Plaque can initiate to build up within the inner coatings of the larger arteries of the physique in childhood, but it grosses much lengthier, typically thirty years or further, for the build-up to intensify to unsafe levels. This procedure of plaque build-up is baptized atherosclerosis, a procedure which is hastened by consuming high blood pressure or cholesterol, diabetes or specially by smoking.^[16-17]

Heart attack Identification

Tests will support check and determine the signs and symptoms of heart failure like chest pain, or other condition. tests comprise

- **Electrocardiogram (ECG):** This test done to classify a heart attack registers the electrical movement of our heart via electrodes devoted to your skin. Impulses are documented as waves exhibited on a monitor or printed on paper. Because wounded heart muscle doesn't compartment electrical impulses usually, the ECG may show that a heart attack has happened or is in headway.^[18,19]
- **Blood tests:** Certain heart enzymes gradually leak out into our blood if your heart has been hurt by a heart attack. Emergency room medics will take samples of our blood to test for the occurrence of these enzymes.

Additional tests

- **Chest X-ray:** An X-ray image of our chest lets our medic to squared the size of our heart and its blood vessels and to appearance for fluid in our lungs.
- **Echocardiogram:** During this test, sound waves absorbed at our heart from a wandlike maneuver (transducer) detained on our chest recoil off our heart and are treated electronically to deliver video pictures of our heart.^[20]
- **Coronary catheterization (angiogram):** A liquid dye is vaccinated into the arteries of our heart finished a long, thin tube (catheter) that's nourished done an artery, usually in our leg or groin, to the arteries in our heart. The dye makes the arteries noticeable on X-ray.
- **Exercise stress test:** In the days or weeks after our heart attack, we may also experience a stress test. Stress tests degree how our heart and blood vessels reply to action^[21,22]

Treatments during a heart attack

Most of time a person who is suffering a heart attack will stop breathing. In this circumstance, cardio-pulmonary resuscitation, or CPR, should be initiated immediately. This procedure involves:

- Manual chest compressions
- A Defibrillator

Treatments following a heart attack

Most people will need numerous kinds of medicines or handlings after a heart attack. The aim of these events is

to stop upcoming heart attacks happening.^[23,24] They may include

- aspirin and other antiplatelets
- beta blockers
- ACE (angiotensin converting enzyme) inhibitors
- statins
- angioplasty
- CABG or coronary artery bypass graft

Advance Treatments of a heart attack

- A gene therapy that uses a patient's own cells to treat heart failure.
- A medicine that blocks the transfer of good (HDL) cholesterol to bad (LDL).
- A genetically-engineered medicine that dissolves clots to treat stroke.

How to Reduce risk for a heart attack

Even if you are suffering from heart disease, there's a lot you can do to recover your heart's health. Don't smoke, even avoid second-hand smoke. always cope with high blood pressure, Eat a healthy and hygenic diet like low in saturated fat, trans fat, and sodium (salt). Get at least 150 minutes of moderate-intensity physical action a week, maintain a healthy weight. Control your diabeatics and blood sugar.^[25-26]

CONCLUSION

Every 34 seconds, somebody dies from heart and blood vessel diseases around the world so heart attack single handly kill many people around the world. A cardiac arrest or heart attack happens when someones heart stops driving blood around his body. However a heart attack can outcome in a cardiac arrest, If Somebody who has had a cardiac arrest will be lifeless and won't be able to breath normally. A heart attack occurs when your heart muscle is starved of oxygen-rich blood This grounds damage to our heart muscle Most of time a person who is misery a heart attack will stop breathing. In this circumstance for treatment cardio-pulmonary resuscitation, or CPR, should be initiated immediately. so physical exersiee, control of blood sugar heathy hygenic food is necessary for control of heart failure.

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