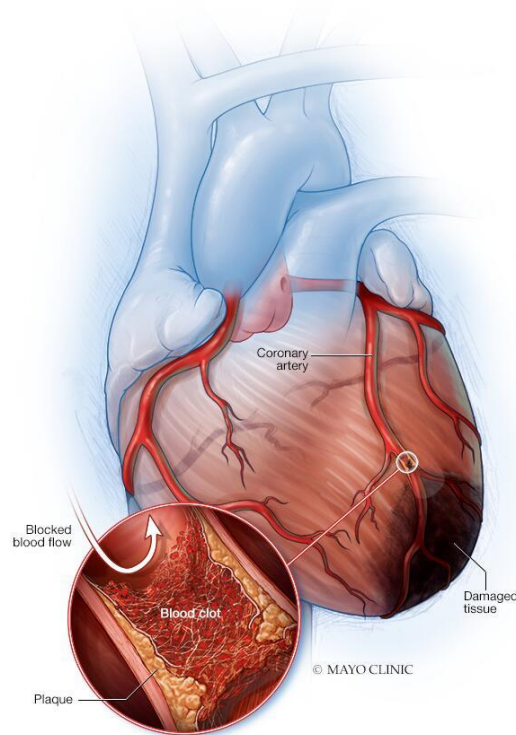


What to know about a heart attack

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It is not given to anybody to be symptomatic when the heart is acting out. A heart attack may be manifested when the blood flow to the heart is blocked or severely reduced, due to a build-up of fat (usually cholesterol) or other substances within the lumen of the coronary vessels (arteries). These deposits often are formed from fatty deposits or other substances like cholesterol or calcium, within the lumen of the arteries (coronaries). They called them “plaques”. Such buildup of plaques is termed atherosclerosis.

A plaque can rupture and form a “clot” which in turn, can occlude t a vessel in certain area and produce damage to part of the heart muscle itself.



Cholesterol, can form plaques built-up in the lumen and arteries bring oxygenated blood to organs like the heart but once the vessel is blocked, an occlusion

deprives the muscle of nutrient break or facilitate the formation of a blood clot into the lumen and may cause a heart attack. A portion of the wall (muscle) can die. The term Myocardial infarction is the term used to describe this life-threatening pathology. An emergent treatment will be required in order to prevent death of the cardiac muscle.

Symptoms of a heart attack may vary considerably with the presentations of mild symptoms like pressure and tightness in the chest, squeezing and extreme pain and/or discomfort spreading to the shoulder and arm especially on the left side. The pain can radiate to the back, and neck or jaw. Often, the patient will exhibit signs of cold sweat, extreme fatigue, heartburn and indigestion, or more sudden dizziness, nausea with shortness of breath. Occasionally, a patient can be asymptomatic.

Sometimes, the first symptom of a heart attack is manifested by a sudden cardiac arrest. You become lucky if you have a warning sign or symptoms lasting days or weeks prior to a heart attack. Sudden signs of pain and/or chest pressure like an angina is not transient but has to be considered as a warning sign. This is definitely caused by a decreased in the blood flow into the heart

Some heart attacks strike suddenly. But one may be lucky to have some warning signs or symptoms hours, days or weeks in advance. Chest pain or pressure (angina) by example that keeps happening but doesn't go away with rest, may be an early warning sign. Angina is caused by a temporary decrease in the blood flow to the heart. It is imperative to reach an emergency room to look for help and have an evaluation or perhaps call 911 to be driven to the nearest emergency room for evaluation and treatment.

If confirmed, Nitroglycerine may be prescribed by a healthcare provider while waiting for additional treatment. Aspirin may be taken if recommended. This may allow a reduction of the heart damage by preventing further intravascular clotting. It is important to know that aspirin can interact with other drugs and it must be taken only if prescribed by the treating physician in the emergency room.

In case of a suspected heart attack in an unconscious patient, a 911 emergency call or any other emergency call number should be initiated while the patient is checked to evaluate if a pulse or instant breathing is observed. If none is noted,

cardiopulmonary resuscitation (CPR) should be initiated as soon as possible. If none of you are trained to perform CPR, a two-hands CPR should be initiated while pushing hard on the chest of the victim at a rhythm of 100-120 compressions per minute. But if one is trained in CPR and confident to performed the resuscitation, a 30-chest compression alternated to two recue breaths can allow the patient to have the best chances of survival.

Coronary artery disease causes heart attacks and often, more than one vessel is generally occluded due to a cholesterol-containing deposits (plaques) able to narrow the lumen of the arteries and reduce the blood flow to the heart. The plaque can also break open, facilitating a blood clot into the heart (coronary vessels). There are ways to classify heart attacks with an EKG showing specific changes in the ST segment. It will manifest with an elevation in this segment requiring emergent invasive treatment. The blockage may be differentiated in an “Acute and complete blockage” in a medium or large size artery (STEMI) or in a partial blockage which most of the time does show a non-ST elevation (NSTEMI). Occasionally, such elevation may demonstrate as well a total blockage in the ST segment.

It is also surprising to know that not all heart attacks are caused by blocked arteries. Some examples come with “Coronary artery spasms” which is seen with a severe squeezing of the vessels but no blockage. A cholesterol plaque can be responsible or other changes in the wall of the vessels may be seen in long-standing smokers or people with other risks factors. Another name for such spasms is “Prinzmetal’s angina” or vasospastic angina. During the recent COVID-19 pandemic, we have seen damage to the heart muscle like we may expect in other viral infections. Another threatening situation is seen with a “Spontaneous artery dissection” (SCAD) which represent a life-threatening condition due to a tear in the artery itself.

Let us review some of the risk’s factors:

- 1- Men above the age of 45 and women above the age of 55 are more prone to have heart attacks.
- 2- Long-term tobacco user and second-hand smoker are at risk even if they quit smoking.
- 3- People with long-standing high blood pressure associated with high level of cholesterol, or people with uncontrolled Diabetes Mellitus and Obesity. The

high level of low-density cholesterol (LDL) is most likely to damage the arteries in the heart by depositing plaques on their wall, narrowing the lumen. This is the effect of that “bad cholesterol”. Other deposits of “triglycerides” also can decrease the size of the lumen and enhance the chances of a heart attack. Finally, another cholesterol known to be a “high-density cholesterol” (HDL) which can provide a protective effect against a heart attack, once it remains controlled to a normal range.

- 4- If the body does not produce enough insulin, the blood sugar rises to trigger blood pressure, triglycerides and bad cholesterol formation while lowering the level of the good cholesterol. In doing so, it encourages Obesity. In that case, the body can't use its own insulin to fight the excess of sugar and the individual becomes at risk for a heart attack.
- 5- Finally, any combination of Obesity, High Blood Pressure, high triglycerides, and high blood sugar create the status of a “Metabolic syndrome” which will encourage the development of heart disease.
- 6- Often, you will hear about family history of heart problems especially when a grand-parent or a parent suffers from heart disease. One will have to remember that we become prone to develop a heart attack by the age of 55 among males and 65 among females.
- 7- A lack of physical activities (sedentary Lifestyle) is certainly linked to a higher risk of heart attacks. Regular exercises will improve your heart condition.
- 8- Look for a life free of emotional stress, avoiding anger and pressure.
- 9- Often, a healthy diet will play a role in your daily life. High content of sugar, animal fats, processed foods, trans fats and salts may trigger heart attack. It is recommended to eat plenty of salads, vegetables with healthy oils.
- 10- Stay away from drug use. Substances like Cocaine, Amphetamines are stimulants and may trigger a coronary artery spasm, causing a heart attack.
- 11- Any history of Pre-eclampsia with high blood pressure during pregnancy increases a life-time risk for a heart attack /disease.
- 12 -Conditions like rheumatoid arthritis or any other autoimmune disease may also increase the risks of a heart attack.

A Heart attack itself can bring deep damages to the cardiac muscle. Patient may develop ‘arrhythmia’ or ‘atypical heart beat’ or irregular heart beat which can be also very serious and life-threatening. A ‘cardiogenic shock” can also follow, although this is a rare condition in which the heart is abruptly unable to pump the blood. Or simply a “heart failure” because of the heavy damage to

the heart muscle, rendering it incapable of pumping the blood for a short moment (temporary) or in a long-standing situation (chronic).

A heart attack may also trigger a faulty immune system response and create a syndrome called “Dressler syndrome” which is a sterile pericarditis shortly after a myocardial injury or post-myocardial infarction syndrome or post cardiac injury syndrome.

Finally, a “cardiac arrest” is seen when the heart stops working. This condition requires immediate treatment because it can lead to death if an immediate response is not given to the one suffering such condition.

To conclude, I just wanted to explore this topic to condition and encourage individual above the age of 55, to have an understanding of the world in which we are living and the need to be aware of the effects of a heart attack in the society in which we are living. Let me repeat to all to:

Avoid smoking in maintaining a healthy weight and following a healthy diet while it is recommended to perform regular exercises and manage your stress. Control your blood pressure and your blood sugar and visit often your PCP. Remember to take diligently medications prescribed for your health.

Last, I may terminate in encouraging anyone to learn how to perform CPR properly, in order to feel comfortable in participating in the reanimation of anyone in distress, suffering from a heart attack. Let us also be familiar with the use of a defibrillator (AED).

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