

Surgical Techniques Used in Coronary Artery

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Introduction

Coronary artery disease is a narrowing of the coronary arteries, the blood vessels that supply the heart's muscles with oxygen and nutrients. CAD is brought on by an accumulation of fatty molecules in the arterial wall [1]. The amount of oxygen-rich blood that can reach the heart muscle is decreased as a result of the buildup, which also makes the inside of the arteries smaller [2].

One way to treat an occluded or narrowed artery is to use healthy blood vessels from other parts of the body to bypass the blocked portion of the coronary artery. During a bypass, chest vein or artery fragments from the leg may be used as blood vessels or grafts [3].

Although less invasive procedures have been developed to bypass blocked coronary arteries, traditional "open heart" operations are still often used and preferred in many circumstances. The 1990s saw the development of "off-pump" surgery, which doesn't require the heart to stop. Various minimally invasive techniques can be utilized, including robotic surgery and keyhole surgery, which both require very small incisions to execute [4].

Your heart must be momentarily stopped by the doctor in order to stitch a graft into a tiny coronary artery. To use a heart-lung machine to pump blood into the body, a tube is introduced into the heart. The doctor injects a cold substance into the heart to stop it from beating while blood is being pushed to the bypass device. By inserting one end of the vein through a small incision in the aorta and the other end through a small opening in the coronary artery right below the occlusion, the doctor can perform a bypass transplant when the patient's heart stops beating [5].

The lower end of the internal breast artery is cut from the interior of the chest and attached by sutures to the incision created in the coronary artery below the occlusion when it is used as a bypass transplant. Several bypass operations can be necessary, depending on how many obstacles there are

and where they are. Once every transplant has been completed, the doctor will examine each one while the blood is still flowing through it to make sure it is functioning properly. The doctor removes the tubing to the bypass machine after inspecting the bypass graft and returning the blood to the heart.

The heart can beat again on its own or after receiving a small electric shock. For discomfort, doctors may temporarily introduce a wire into the heart. During the initial phase of recuperation, these wires can be attached to a pacemaker and stimulate the heart as necessary [6].

The condition most likely to lead to CABG is coronary heart disease, a group of conditions that also includes coronary heart attack and coronary artery disease. Additional conditions under coronary heart illness include silent myocardial ischemia, which is coronary heart ischemia without symptoms, and angina pectoris, which is chest pain brought on by ischemia to your heart.

The arteries leading to your coronary heart are frequently narrowed by diseases like coronary heart condition because of the accumulation of plaque, a fatty, wax-like deposit. Your coronary heart's arteries get stiffer and narrower when plaque accumulates inside of them. Blood clots may form in an area of plaque that has ruptured, obstructing the affected arteries. These blockages cause ischemia in some areas of your heart, which can lead to a heart attack.

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