

*If you have any
questions or
concerns, call
312.NM.HEART
(312.664.3278).*

Chronic Total Occlusion of the Coronary Arteries

This brochure will help you better understand chronic total occlusion of the coronary arteries and the treatment options for it.

Coronary artery disease

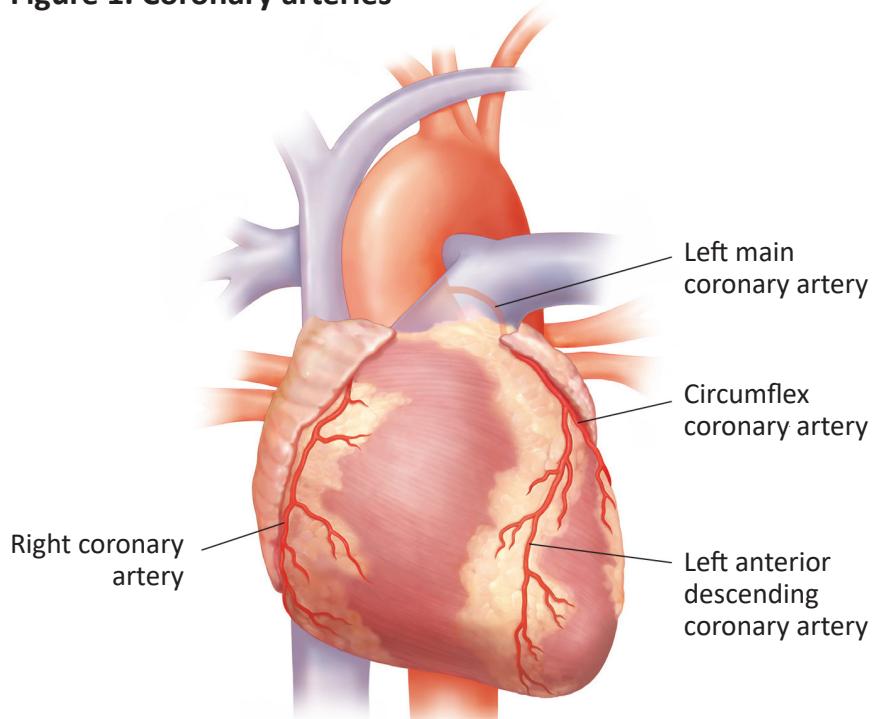
Coronary artery disease (CAD) affects the arteries of the heart. (Figure 1). CAD happens when the arteries become clogged with plaque.

Plaque is made 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. This is known as atherosclerosis.

When it happens in the coronary arteries, it decreases blood flow to the heart muscle. If there is low blood flow, your heart muscle does not get the oxygen and nutrients it needs to function at its best. This can damage the heart muscle.

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

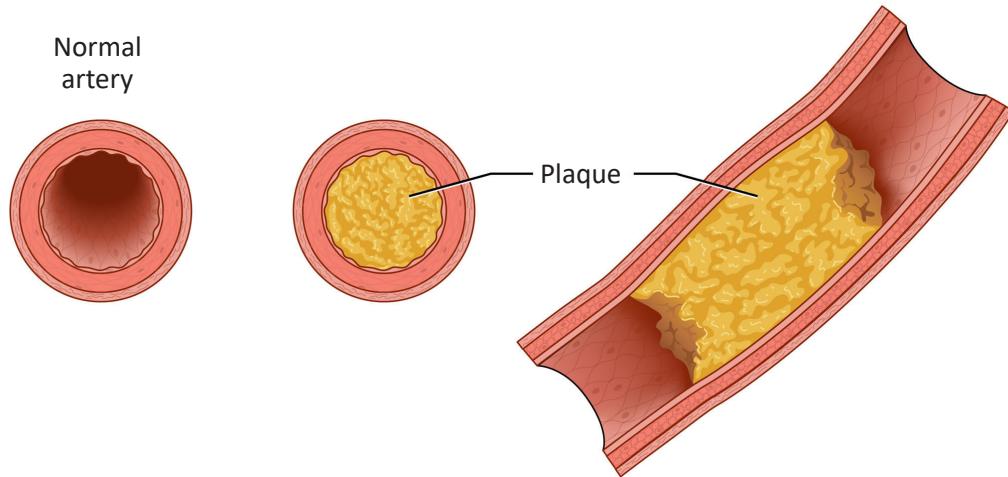
Figure 1. Coronary arteries



Chronic total occlusion

When the artery has been completely, 100% blocked for more than 3 months, it is known as chronic total occlusion (CTO) of the artery (Figure 2).

Figure 2. Chronic total occlusion of the artery



Sometimes, when a coronary artery is completely blocked, smaller arteries in the heart send blood around the blockage. These new arteries are known as collateral arteries. They bring some, but not enough, blood flow to the affected area of the heart. So, a patient with CTO can still have symptoms of poor blood supply to the heart, such as:

- Shortness of breath
- Fatigue
- Angina (chest pain) with physical activity

The CTO plaque is often a very thick and hard blockage. These blockages may be hard to treat with medications and other procedures. However, the Northwestern Medicine Bluhm Cardiovascular Institute Center for Coronary Disease offers advanced techniques to treat and ease symptoms of CTO.

Treatment options for chronic total occlusion

A physician can diagnose CTO by an angiogram. This shows them the condition of the coronary arteries. Then, the CTO team will work with you to make a plan to manage the CTO. The team includes physicians, nurses and technicians.

Usually, the 1st step in this plan is to assess and adjust your medications to improve symptoms. If this does not work, your physician may recommend a percutaneous coronary intervention (PCI) especially for CTO.

PCI for CTO can successfully treat and ease symptoms. It can open blockages and increase blood flow to the heart. In most PCIs the physician passes a wire through a narrow opening in the artery. However, in a PCI for CTO, the physician passes the wires directly through or around the blockage. They often use the collateral arteries that have been formed.

During the procedure, the physician will put a catheter into a blood vessel near the groin and/or wrist. Then, they will pass special wires or devices through the catheter to the blockage.

Once the wires are in place, the physician will inflate a balloon to compress the plaque to open the artery. They will put a stent (small mesh tube) in the artery to help keep it open. This lets blood to flow normally to the heart.

Benefits of treatment

Specially trained staff can do PCI for CTO safely with a low risk for problems. The procedure is minimally invasive and most patients often go home the next day. Afterwards, the improved blood supply and heart function often improve symptoms.

To qualify for PCI for CTO

You may be a candidate for this treatment if you have **all** of the following:

- CTO with symptoms from the blocked artery
- Abnormal stress test
- Continuing symptoms despite medication therapy

Contact information

For more information about treatment of CTO, call the Bluhm Cardiovascular Institute at **312.NM.HEART (312.664.3278)**.

Clinical trials

For more information about clinical trials related to coronary disease, call **312.926.4000**.