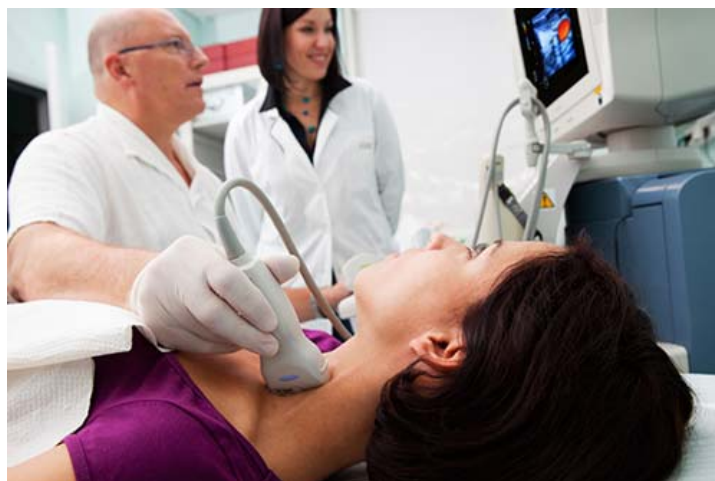




## Carotid Artery Stenosis

Carotid artery stenosis is a narrowing of the large arteries on either side of the neck that carry blood to the head, face and brain. This narrowing is usually the result of a build-up of plaque within the arteries, a condition called atherosclerosis. Stenosis can worsen over time to completely block the artery which may lead to stroke.

Your doctor may use carotid ultrasound, CT angiography (CTA), magnetic resonance angiography (MRA), or cerebral angiography to determine the presence and location of stenosis. Treatment to improve or restore blood flow may include angioplasty and vascular stenting or, in severe cases, surgery.



## What is carotid artery stenosis?

Carotid artery stenosis is a narrowing in the large arteries located on each side of the neck that carry blood to the head, face and brain. The narrowing usually results from atherosclerosis, or a build-up of plaque on the inside of the arteries. Over time, stenosis can advance to complete blockage of the artery.

Risk factors for carotid artery stenosis include age, smoking, high blood pressure, diabetes, obesity and an inactive lifestyle.

Some people with carotid artery stenosis may experience dizziness, fainting and blurred vision which may be signs of the brain not receiving enough blood. In many cases, the first symptom is a transient ischemic attack (TIA) or a stroke because a small blood clot can form in the area of the vessel that is affected by atherosclerosis. When such a small clot becomes dislodged, it can travel into the brain and plug up a smaller artery on which a particular piece of the brain depends for its function and ultimately survival. Symptoms of a TIA and stroke are similar: paralysis or numbness on one side of the body, blurred vision, headache, trouble speaking and difficulty responding to others. A TIA is usually brief and leaves no lasting damage; it is due to a very small, temporary occlusion of a small artery but often a warning sign. A stroke is often associated with permanent injury of a part of the brain due to loss of its blood supply and can result in severe disability or death.

## How is carotid artery stenosis diagnosed and evaluated?

Carotid artery stenosis sometimes causes an abnormal sound, or bruit, in the artery that can be heard with a stethoscope. Imaging tests to diagnose, localize and measure stenosis include:

- Carotid ultrasound (including Doppler ultrasound): This test uses sound waves to create real-time pictures of the arteries and locate blockages. Doppler is a special ultrasound technique that can detect areas of restricted blood flow in the artery.
- Computed tomography angiography (CTA): CTA uses a CT scanner to produce detailed views of the arteries anywhere in the body – in this case, in the neck. The test is particularly useful for patients with pacemakers or stents.
- Magnetic resonance angiography (MRA): This noninvasive test gives information similar to that of CTA without using ionizing radiation.
- Cerebral angiography: Also known as intra-arterial digital subtraction angiography (IADSA), cerebral angiography is a minimally invasive test in which a catheter is guided through an artery to the area of interest. Contrast material is injected through the tube and images are captured with x-rays.

## How is carotid artery stenosis treated?

Severe cases of stenosis often require carotid endarterectomy, in which a surgeon makes an incision to remove plaque and any diseased portion of the artery while the patient is under general anesthesia. A less invasive option includes:

- Carotid artery angioplasty and stenting: During this procedure, a catheter is threaded from an incision in the groin to the site of the blockage, where a balloon tip is inflated to open the artery. A stent may be placed in the artery to expand it and hold it open.

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