

CAROTID ENDARTERECTOMY (CE)

Carotid endarterectomy is an operation performed to remove narrowing in a carotid artery. Doctors usually become aware of this situation because you have had a stroke or a transient ischemic attack (TIA).

- **Carotid:** refers to the carotid arteries, the blood vessels in your neck that supply blood to your brain.
- **Endarterectomy:** end – inside, arter- artery and ectomy - removal.
Carotid endarterectomy removes the inner lining of the carotid artery when the lining has become thickened, or damaged, by a build-up of plaque, (referred to as stenosis)

Carotid endarterectomy allows blood flow to be restored.

If left untreated a blood clot can form in the narrowed artery. This may lead to a stroke.

Carotid endarterectomy can half your risk of stroke or death from carotid blood clots in the next 5-8 years.

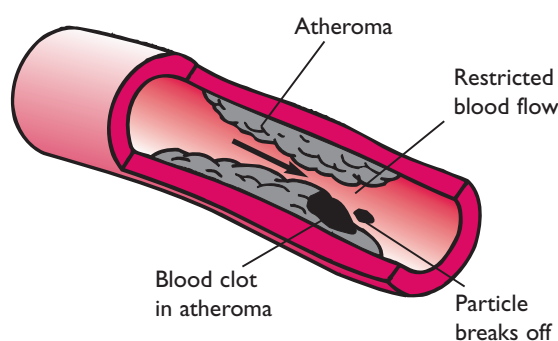
Carotid arteries and atherosclerosis

There are two carotid arteries, one on each side of your neck. They carry the main blood supply to your brain. Normal, healthy arteries are elastic and smooth on the inside so that blood can flow easily through them. As you age plaque can build up inside your arteries making them narrow and stiff. This process is called atherosclerosis.

Plaque consists of cholesterol, calcium and fibrous tissue. As well as the natural ageing process, other factors which cause plaque to build up include:

- eating fatty foods
- high blood pressure
- smoking
- diabetes

Plaque can also attract blood clots and other debris which narrows the artery even more. These clots can then break off and travel in your bloodstream up to your brain, causing a stroke.



HEAD OFFICE

3rd Floor, Rosebery House, 9 Haymarket Terrace, Edinburgh EH12 5EZ

Tel: 0131 225 6963 Fax: 0131 220 6313 Advice Line: 0845 077 6000

E-mail: admin@chss.org.uk Website: www.chss.org.uk

Scottish Charity No. SC018761

What tests will you have?

Initially you will need to have some tests to find out the extent of the narrowing (or stenosis) in your carotid arteries. Your doctor may suggest one or more of the following tests:

- **Ultrasound:** this involves passing a 'probe' over your neck. The probe generates painless sound waves which create an image of your blood vessels. This shows the extent of the narrowing in the arteries.
- **CT scan (computerised tomography):** a computer is used to take pictures of your neck from different angles. This produces detailed pictures of the inside of your arteries.
- **Angiography:** a special dye, which shows up on x-rays, is injected into your blood vessels. This provides detailed pictures of your blood vessels and the blood flow through them.
- **MRA (magnetic resonance angiography):** a magnetic field and radio waves are used to produce images of your arteries and blood flow.



Who should have this surgery?

Your doctor and anaesthetist will consider whether you are eligible for this surgery. They will need to work out if the risk of the surgery is outweighed by the benefits.

Some people have too many risk factors for carotid endarterectomy to be a reasonable option. This surgery may not be suitable for you if you have:

- previous stroke with a poor recovery
- untreated high blood pressure
- diabetes
- unstable angina
- a heart attack in the past 6 months
- widespread cancer
- heart failure

It may also be unsuitable if you are a heavy smoker or if there is a blockage in both of your carotid arteries.

In Scotland, doctors use the NASCET (North American Symptomatic Carotid Endarterectomy Trial) scale to measure stenosis (narrowing) in the carotid arteries and determine who should have carotid endarterectomy.

Using this scale, you should be considered for carotid endarterectomy as soon as possible after your Stroke, or TIA, if you are:

- a man with a carotid artery stenosis (narrowing) of 50-99%
- a woman with a carotid artery stenosis (narrowing) of 70-99%

If you have not had a stroke, but the above degree of stenosis has been noted, surgery will probably still be recommended.

Surgery is not beneficial if there is complete blockage.

What are the risks?

Like all forms of surgery there are some risks to carotid endarterectomy. There is a risk that it could cause a stroke due to debris being dislodged (from the wall of your carotid artery) and travelling in your bloodstream to your brain. The risk of this happening is around 5% and the risk of death is 1-3%. This is why your doctor has to consider the extent of the narrowing in your carotid arteries and whether the benefit outweighs the risks.

Following surgery there are other factors to consider. For example:

- You may develop a wound or chest infection.
- Nerve damage may occur, leading to facial numbness, hoarse voice and difficulty in moving your tongue.
- A haematoma (a large bruise) can develop near the carotid artery. This can be serious because of its location next to your windpipe.

What if I am not eligible for surgery?

Whether you have carotid endarterectomy surgery or not, current medical guidelines recommend that everyone who has had an ischaemic stroke (due to a blood clot) or a TIA is given the following medications to reduce the risk of stroke:

- antiplatelets (such as aspirin and dipyridamole) to thin your blood
- statins (eg. simvastatin) to reduce the cholesterol level in your blood.



What happens during the procedure?

You will have an anaesthetic, either a general anaesthetic (which will make you sleep throughout the procedure), or a local anaesthetic (which will numb your neck but allow you to remain awake). Research shows that the success of the operation is not affected by the choice of anaesthetic. However, a local anaesthetic is often preferred so the surgeon can monitor your response to the change in blood flow to your brain.

An incision will be made in your neck so the surgeon can reach the carotid artery and clamp the blood vessel in readiness to open it up. Your brain is still supplied with blood via the other carotid artery on the other side of your neck. The surgeon then removes the inner lining of your affected artery, along with any plaque it contains.

Often a patch is sewn into the opening of the artery to widen it at this point. This patch can be either man-made or taken from a vein in your leg. Once the artery is stitched up, the clamps are removed and the incision in your neck is closed with stitches. Sometimes a narrow tube is left to drain out any excess fluid or blood and is normally removed the next day.

The procedure usually takes around 2 hours.

Recovery

- After surgery you will be in a recovery ward where you will be monitored. Most people can eat and drink a few hours after surgery and will be discharged home 1-2 days after the operation.
- There is often some swelling or bruising in your neck which usually settles within 7-10 days. Although your scar will be visible initially this will fade to a slim silver line in 2-3 months.
- You should have a gradual return to normal activity, such as a combination of short walks and rest periods.
- You should avoid heavy exercise for 4-6 weeks. Ask your GP if you are in any doubt about what activities you can do.
- You can usually return to driving after 2-3 weeks, if you can perform an emergency stop and look over your shoulder comfortably.
- You should be able to return to work in 3-4 weeks.
- Your GP can advise you on your readiness to work and drive. Everyone is unique and you will have your own recovery path depending on your age, medical history and life circumstances.

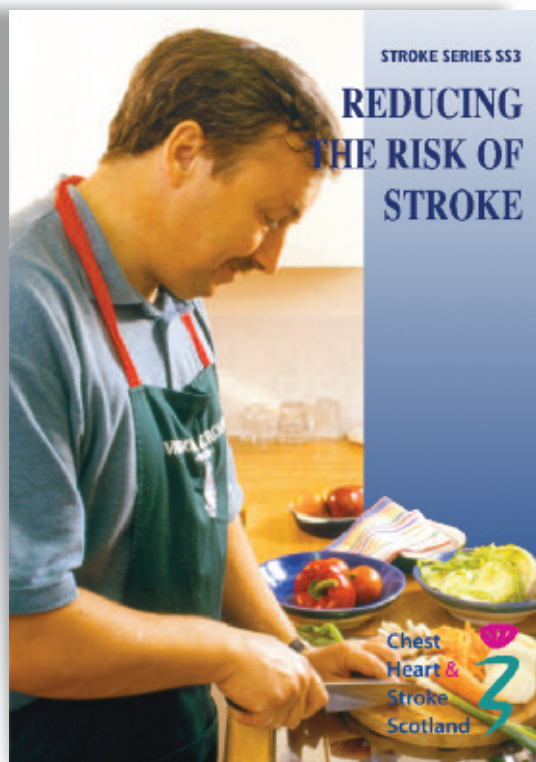
What else can you do?

Although carotid endarterectomy can reduce your risk of stroke, by removing the build-up of plaque, you will need to make changes to your lifestyle to stop it from building up again.

These are some key areas that you can address:

- stop smoking
- have your blood pressure checked regularly
- eat a healthy, balanced diet
- take regular exercise
- maintain a healthy weight
- moderate your alcohol intake
- control your cholesterol level

See the CHSS booklet ‘Reducing the risk of stroke’ for more information.



If you would like to speak to one of our nurses in confidence,
please call the Chest Heart & Stroke Scotland Advice Line
Monday – Friday 9.30am - 4.00pm

0845 077 6000