

# V01 Carotid Endarterectomy

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## What is a stroke or a minor stroke?

A stroke (CVA) is a loss of brain function resulting from an interruption of the blood supply to your brain. The main cause is a condition called atherosclerosis, where abnormal fatty material (called atheroma) coats the inside of an artery, causing it to narrow or 'harden'. A minor stroke or TIA (transient ischaemic attack) causes only temporary loss of brain function, but a TIA can be followed by a major stroke. Operating on your carotid artery will reduce the risk of you having a stroke in the future.

Your surgeon has recommended a carotid endarterectomy. However, it is your decision to go ahead with the operation or not.

This document will give you information about the benefits and risks to help you to make an informed decision. If you have any questions that this document does not answer, ask your surgeon or the healthcare team.

## How does a stroke happen?

Your neck artery supplying your brain (internal carotid artery) becomes narrowed (see figure 1).

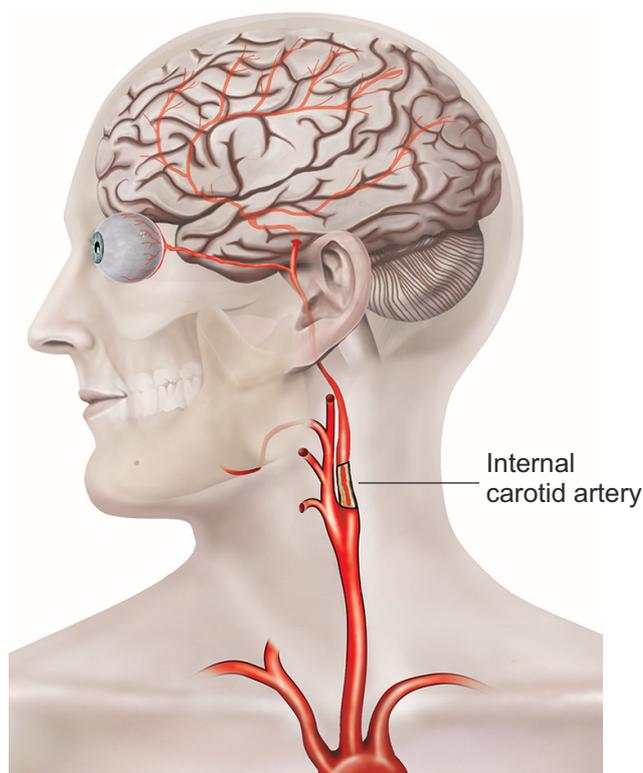


Figure 1

A narrowed internal carotid artery

The left artery supports the function of the right side of your body (including your arm and leg) and vice versa.

If you have a narrowing in your neck artery, you have a higher risk of having a stroke. People who have had a TIA are more likely to have a major stroke in the future.

Atherosclerosis develops because of one or more of the following risk factors – smoking, high blood pressure, a family history of atherosclerosis, age, diabetes and high cholesterol levels. These factors also cause heart disease and problems with arteries in your legs.

If you have recently had a stroke or a TIA and your internal carotid artery has narrowed by more than 70% of its normal size, there is evidence to show that you would benefit from an operation.

However, your surgeon may recommend an operation even if you have not had any symptoms.

## What are the benefits of surgery?

You should have less risk of having further strokes.

## Are there any alternatives to surgery?

You may already be taking blood-thinning medication such as aspirin or clopidogrel. This is useful in preventing further strokes but is less effective than an operation.

For some people it may be possible to have a procedure to widen or unblock an artery using a small inflatable balloon. A stent (metal mesh tube) is usually used to hold the artery open. There is also a risk of serious complications. Your surgeon will discuss the options with you and tell you why they have recommended a carotid endarterectomy as the best treatment for you.

## What will happen if I decide not to have the operation?

Your doctor will make sure that you take blood-thinning medication and that the risk factors for this disease, such as high blood pressure, diabetes and high cholesterol levels, are treated. You should stop smoking as this will help prevent further strokes. However, the risk of having a stroke is higher without surgery.

## What does the operation involve?

Before the operation you may have a Doppler ultrasound (or Duplex scan) of your neck.

The healthcare team will carry out a number of checks to make sure you have the operation you came in for and on the correct side. You can help by confirming to your surgeon and the healthcare team your name and the operation you are having.

The operation is performed either under a general anaesthetic or under a local anaesthetic. Your anaesthetist will discuss the options with you and recommend the best form of anaesthesia for you. You may also have injections of local anaesthetic to help with the pain after the operation. You may be given antibiotics during the operation to reduce the risk of infection. The operation usually takes 90 minutes to two hours.

Your surgeon will make a cut on your neck over the artery. They will temporarily clamp the artery. They may use a temporary shunt (bypass) if the blood flow in the opposite artery is poor. They will remove the lining of the artery that has become diseased (caused by atherosclerosis) (see figure 2).

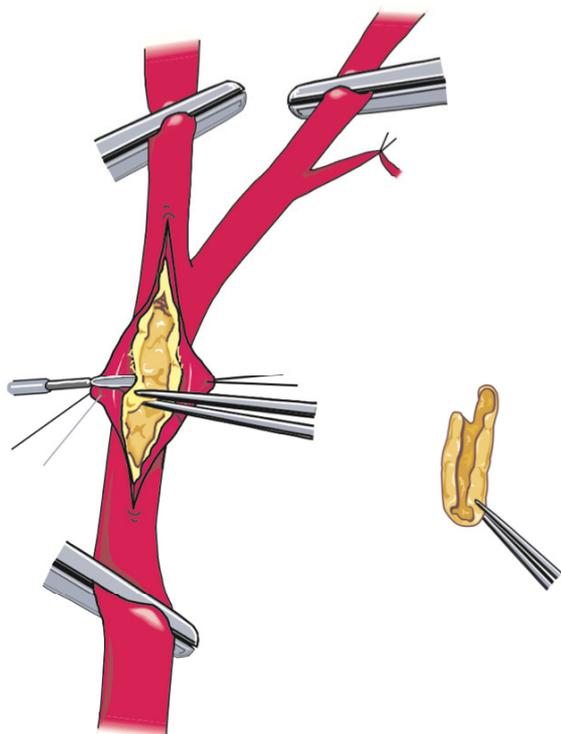


Figure 2

A carotid endarterectomy

Your surgeon may use a patch to prevent narrowing (either a piece of vein or an artificial patch). If they use a piece of vein for the patch, they will take it from one of your legs through another cut.

They will close the artery, using the patch if they need to.

### **What should I do about my medication?**

Let your doctor know about all the medication you take and follow their advice. This includes all blood-thinning medication as well as herbal and complementary remedies, dietary supplements, and medication you can buy over the counter.

### **What can I do to help make the operation a success?**

If you smoke, stop smoking now. Smoking is one of the main reasons why this problem happens. Stopping now can help to reduce the risk of you having a heart attack (where part of the heart muscle dies), having further narrowing of the arteries and developing certain cancers. Stopping several weeks or more before the operation may reduce your risk of developing complications and will improve your long-term health.

Try to maintain a healthy weight. You have a higher risk of developing complications if you are overweight.

Regular exercise should help to prepare you for the operation, help you to recover and improve your long-term health. Before you start exercising, ask the healthcare team or your GP for advice.

You can reduce your risk of infection in a surgical wound.

- In the week before the operation, do not shave or wax the area where a cut is likely to be made.
- Try to have a bath or shower either the day before or on the day of the operation.
- Keep warm around the time of the operation. Let the healthcare team know if you feel cold.

### **What complications can happen?**

The healthcare team will try to make the operation as safe as possible but complications can happen. Some of these can be serious and can even cause death (risk: 1 in 100). You should ask your doctor if there is anything you do not understand. Any numbers which relate to risk are from studies of people who have had this operation. Your doctor may be able to tell you if the risk of a complication is higher or lower for you.

## 1 Complications of anaesthesia

Your anaesthetist will be able to discuss with you the possible complications of having an anaesthetic.

## 2 General complications of any operation

- Pain. The healthcare team will give you medication to control the pain and it is important that you take it as you are told so you can move about and cough freely.
- Bleeding during or after the operation (risk: 1 in 30). It is common for the area around your wound to be bruised. Rarely, you will need a blood transfusion or another operation.
- Infection of the surgical site (wound). It is usually safe to shower after two days but you should check with the healthcare team. Let the healthcare team know if you get a high temperature, notice pus in your wound, or if your wound becomes red, sore or painful. An infection usually settles with antibiotics but you may need another operation.
- Unsightly scarring of your skin, although the cut usually heals to a neat scar.
- Blood clot in your leg (deep-vein thrombosis – DVT). This can cause pain, swelling or redness in your leg, or the veins near the surface of your leg to appear larger than normal. The healthcare team will assess your risk. They will encourage you to get out of bed soon after the operation and may give you injections, medication, or special stockings to wear. Let the healthcare team know straightaway if you think you might have a DVT.
- Blood clot in your lung (pulmonary embolus), if a blood clot moves through your bloodstream to your lungs. If you become short of breath, feel pain in your chest or upper back, or if you cough up blood, let the healthcare team know straightaway. If you are at home, call an ambulance or go immediately to your nearest Emergency department.

## 3 Specific complications of this operation

- Developing a stroke (risk: less than 1 in 50). A stroke can happen around the time of surgery if part of the abnormal lining dislodges and travels up to your brain. The risk of having a stroke is higher without surgery.
- Injury to the nerves supplying the muscles of the tongue (risk: 1 in 40). This is usually temporary but can be permanent. This may affect how you talk and eat.

- Injury to the nerves supplying the vocal cords (risk: 1 in 40). This is usually temporary but can be permanent. You may get a hoarse voice.
- Injury to other nerves that supply your skin or muscles around your wound, which leads to numbness, muscle weakness or continued pain (risk: 1 in 15). For some men, this can make shaving uncomfortable.
- Infection of the artificial patch close to the artery (risk: less than 1 in 100).
- Heart attack (risk: less than 1 in 100). This can sometimes cause death.

## How soon will I recover?

### • In hospital

After the operation you will be transferred to the recovery area and then to the ward. Sometimes you may go to the intensive care unit or high dependency unit for up to 24 hours so the healthcare team can monitor you more closely. You will be able to drink after you have recovered from the anaesthetic.

You should be able to go home after one to two days. However, your doctor may recommend that you stay a little longer.

If you are worried about anything, in hospital or at home, contact the healthcare team. They should be able to reassure you or identify and treat any complications.

### • Returning to normal activities

To reduce the risk of a blood clot, make sure you follow carefully the instructions of the healthcare team if you have been given medication or need to wear special stockings.

Your surgeon will tell you when you can return to work.

Regular exercise should help you to return to normal activities as soon as possible. Before you start exercising, ask the healthcare team or your GP for advice.

Do not drive until you are confident about controlling your vehicle and always check your insurance policy and with your doctor.

### • The future

Most people make a full recovery and can return to normal activities. Your surgeon will recommend that you have treatment with blood-thinning medication, such as aspirin or clopidogrel, to reduce the risk of the artery becoming narrowed again.

## Summary

Narrowing of the carotid artery caused by atherosclerosis is a common condition, which increases the risk of having a stroke. If you have recently had a stroke or TIA and your internal carotid artery has narrowed by more than 70% of its normal size, you should benefit from an operation. If left untreated, the risk of having a stroke is higher.

Surgery is usually safe and effective but complications can happen. You need to know about them to help you to make an informed decision about surgery. Knowing about them will also help to detect and treat any problems early.

**Keep this information leaflet. Use it to help you if you need to talk to a healthcare professional.**

## Acknowledgements

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