Carotid endarterectomy

Vascular Surgery

Patient Information Leaflet

The vascular centre for the Black Country population is at The Dudley Group and so major vascular operations are carried out at Russells Hall Hospital, Dudley.

Surgeons, anaesthetists, radiologists and nurses from Russells Hall Hospital in Dudley, New Cross Hospital in Wolverhampton and Manor Hospital in Walsall are working together as part of the Black Country Vascular Centre (BCVC) to improve the care that patients with vascular conditions receive.

Introduction

This leaflet is about an operation known medically as a carotid endarterectomy. It tells you about what happens during the procedure and its benefits and risks.

If you need any more information on the procedure, please speak to the vascular team.

What is a carotid endarterectomy?

It is an operation to unblock an artery called a carotid artery. These arteries are the main blood vessels that go to the head and neck (please see figure 1).

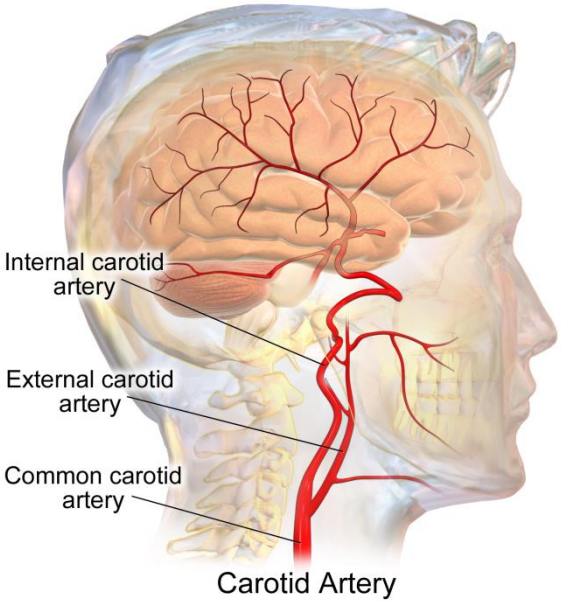

Figure 1 shows the carotid arteries
(Reproduced with permission from Blausen Gallery, 2014)

Why is the operation needed?

It may be needed if one or both of your carotid arteries become narrowed.

This can happen if you have a build-up of fatty deposits in your arteries. It is known medically as carotid artery disease (CAD).

If you have CAD, it increases your chances of having a stroke or a mini stroke (transient ischaemic attack – TIA). A TIA is similar to a stroke but the symptoms are temporary and usually disappear within 24 hours. Often CAD is discovered after a patient has had a stroke or TIA.

Why does CAD develop?

Normal healthy arteries are elastic and smooth on the inside, allowing blood to easily flow through them. As a person gets older, fatty deposits can build up inside arteries, making them narrower and stiffer. This is known medically as atherosclerosis. It means that the blood cannot flow through the artery as easily.

Other factors that can contribute to a build-up of fatty deposits in arteries include:

- a high fat diet
- high blood pressure
- diabetes
- smoking

How is CAD diagnosed?

CAD is suspected in a person who has had the symptoms of a stroke or TIA. It may be diagnosed if you are having tests for another reason and the doctor testing you notices your arteries are narrowed.

If your doctor thinks that you might have CAD, they will suggest you have brain imaging tests. These tests check the blood supply to your brain and show any narrowing in your carotid arteries.

If tests show your carotid arteries are narrowed, it depends how narrow they are as to whether you will need surgery.

It is important to realise that the left side of the brain looks after the right arm and leg, and the right side of the brain looks after the left arm and leg.

When is surgery recommended?

The National Institute for Health and Care Excellence (NICE) recommends the surgery for people who have had a stroke or TIA, and who have moderate or severe narrowing in their arteries.

You should be assessed within a week of the start of your stroke or TIA symptoms. The operation will ideally be carried out within two weeks of your symptoms starting.

Surgery will sometimes be recommended if you have severe narrowing of your arteries but have not already had a stroke or a TIA.

Surgery will not be recommended if you have minor narrowing. A carotid endarterectomy will not benefit people with a complete blockage of their carotid artery.

What are the benefits?

The surgery reduces the chances of having further strokes, TIAs and/or death significantly.

What are the risks?

As with all types of surgery, there are risks associated with having a carotid endarterectomy. It is important that we make you aware of these risks.

The three main risks are:

- stroke – two in every 100 people may have a stroke during or after the procedure. This number may be higher in people who have had a stroke before the operation.
- heart attack – around two in every 100 people may have a heart attack during or after the procedure.
- death – less than one person in every 100 may die during or after the procedure. This is usually as a result of complications such as a stroke or heart attack.

Most strokes that occur after the procedure are caused by an artery in the brain becoming blocked soon after the operation, or because there is some bleeding into the brain tissue. Your surgical and anaesthetic team will do all they can to prevent this.

Other risks include:

- Pain or numbness at the wound site – can be temporary or permanent.
- Bleeding at the site of the wound. Rarely, a blood transfusion is needed.
- Wound infection – the wound where the cut is made can get infected. This affects less than one in every 100 people and is easily treated with antibiotics.
- Chest infection – these occasionally occur as they are a risk with any surgery. They are more common in smokers.
- Blood clots – also known as deep vein thrombosis (DVT). When you are not active for a period of time, blood moves more slowly around your body which can trigger a blood clot. We will assess whether you may be at risk of this.

  If necessary, we may recommend that you wear compression stockings, and have an injection of a blood-thinning medication each day you are in hospital.
- Nerve damage – this can cause a hoarse voice, and weakness or numbness on the side of your face. It affects around four in every 100 people, but is usually temporary and disappears within a month.
- Narrowing of the carotid artery again. Further surgery is required in about two to four in every 100 people.

Your surgeon should explain the risks associated before you have the procedure. Ask them about anything you are not sure about, and to answer any concerns you have.

Increased risk

Factors that increase the risks include older age, smoking, obesity, diabetes, heart disease, blockage of your other carotid artery and a recent severe stroke.

What are the alternatives?

An alternative is treatment with aspirin or other medication. However, there is a higher risk that a major stroke will occur with this treatment than if you have surgery.

Sometimes an alternative procedure called carotid artery stent placement may be considered. For this, a small cut is made in the groin (inner thigh) and a mesh cylinder (stent) is placed into the narrowed section of artery to widen it.

This stent placement is currently thought to be associated with a higher risk of stroke during the procedure. However, it is a useful alternative for people who may have a higher risk of complications from a carotid endarterectomy operation.

How do I prepare for surgery?

After having a TIA or stroke, all patients are given medical treatment and advice to reduce their risk of further TIAs or strokes. This includes treatment of:

- high blood pressure
- diabetes
- high cholesterol levels
- heart disease
- losing weight
- stopping smoking

Common treatments include aspirin or a similar drug, and a statin. Statins are cholesterol-lowering drugs.

Stopping smoking is very important. If you would like help with stopping smoking, please contact a member of the hospital Stop Smoking Team on 01384 456111 ext. 2783.

What happens before surgery?

We will ask you to come for an appointment to the pre-assessment unit at Russells Hall Hospital. At the appointment, you will see a specially-trained nurse to assess your fitness for surgery.

You will have some tests including an ECG (heart tracing test) and blood tests. Please bring any medication with you that you take regularly. If you have any questions, please ask the nurse.

We will ask you not to eat for a minimum of six hours before your surgery. You can drink water until two hours before surgery.

What happens on the day of surgery?

You will usually need to come to hospital on the day of surgery to ward B3. The average hospital stay is one to two nights. Bring with you any medication you take, nightwear, toiletries and something to occupy your time such as a book or magazine.

We advise you not to bring valuables into hospital. The hospital cannot accept responsibility for your property unless it is handed to a staff member for safekeeping and an official receipt is obtained.

As the procedure is likely to last about two hours, we suggest you go to the toilet before you go to the operating theatre.

What happens about pain relief?

The procedure will be carried out using either a general or local anaesthetic. Anaesthetic is painkilling medication that allows surgery to take place without feeling pain or discomfort.

It will be up to you, your surgeon and your anaesthetist (a specialist in anaesthetics) to discuss which type of anaesthetic will be best in your case.

Some surgeons prefer to use local anaesthetic so they can monitor your brain's reaction to the decreased blood supply experienced during the procedure.

For the anaesthetic, the anaesthetist will insert two drips (needles) into the back of your hands to allow them to give you medications and monitor your blood pressure.

If you are having a **general anaesthetic**, you will then be put to sleep for the procedure.

If you have a **local anaesthetic,** you will be awake for the procedure. The area on your neck will be numbed with a series of injections so you cannot feel any pain. If you feel any discomfort, the surgeon will give you more local anaesthetic to make it comfortable for you.

Sometimes if you are having a local anaesthetic, we may also suggest that you have a light sedative to make you feel relaxed and sleepy, to ease any anxiety. If you have a local anaesthetic, it is normal to be aware that the surgeon is doing the operation, but it should not be painful.

What happens during the operation?

You will need to sit on a couch which will be adjusted so you are lying back slightly, like at the dentist. The surgeon will clean and cover your neck with some sterile sheets. These will be arranged so it is not too claustrophobic for you but so that you will not be able to see what the surgeon is doing.

When the operation is being performed, you must lie as still as possible. A member of staff will talk to you throughout the procedure.

Once you have had your anaesthetic, the surgeon will:

- Make a cut in the skin of your neck over the carotid artery.
- Temporarily clamp off the artery.
- Remove the inner lining of the narrowed section of the artery.
- Close the artery and use dissolvable stitches to close the skin.

The surgeon may need to put a small tube in to drain away any blood that might build up after the operation. We will take this out after 24 hours.

What happens after the operation?

After a short time in the recovery area, we will take you to the Vascular Specialist Care Unit (VASCU) which is part of ward B3.

The nurses will monitor you closely overnight for any complications. The operation site should not be particularly painful and tablet pain relief such as paracetamol is usually sufficient. However, if you are still in pain, please speak to your nurse.

Most people are able to eat and drink a few hours after having surgery.

Relatives can to visit on the evening after surgery.

You will usually be able to leave hospital within 48 hours.

What happens when I leave hospital?

As dissolvable stitches are used, these will not need to be taken out. You may feel tired for a few weeks after surgery but this should gradually improve as time goes on.

We will usually give you a prescription for a small dose of aspirin, if you are not already taking it. This makes the blood less sticky. If you are cannot take aspirin, we may prescribe another similar drug.

We recommend regular exercise, such as a short walk, combined with rest, to provide a gradual return to normal activity.

Driving

Always check with your insurance company when you can drive after surgery.

From a medical point of view, you will be able to drive when you can perform an emergency stop safely and without pain. This will normally be about two to three weeks after surgery. It is a good idea to check with your GP.

The DVLA do not allow people to drive for one month after a TIA or stroke. If you have fully recovered, you do not need to inform the DVLA.

What happens next?

The operation usually reduces your risk of having a stroke or TIA in the long term.

You may be able to help reduce this risk further by improving your general health. This can include taking regular exercise, stopping smoking, controlling any high blood pressure or diabetes, and reducing the amount of fat in your diet. All these things will help reduce the chances of further trouble from CAD.

There are many good drugs that will help to control your high blood pressure and diabetes. Aspirin or similar drugs will help blood to be less sticky, hopefully preventing any problems in the future with blood clots.

Can I find out more?

You can find out more from the following website:

NHS Choices
http://www.nhs.uk/conditions/carotidendarterectomy/Pages/introduction.aspx

If you have any questions, or if there is anything you do not understand about this leaflet, please contact:

Vascular Nurse Specialist on 01384 456111 ext. 2456 (8am to 4pm, Monday to Friday) or your consultant's secretary

Russells Hall Hospital switchboard number: 01384 456111

This leaflet can be downloaded or printed from:

http://dudleygroup.nhs.uk/services-and-wards/vascular-service/

If you have any feedback on this patient information leaflet, please email patient.information@dgh.nhs.uk

This leaflet can be made available in large print, audio version and in other languages, please call 0800 073 0510.

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Originator: Adrian Jennings. Date originated: August 2016. Review date: August 2019. Version: 2. DGH ref: DGH/PIL/01262