



Information for  
patients and  
carers

Understanding Carotid  
Endarterectomy

## Why do I need the operation?

There is a narrowing in your carotid artery (the artery in your neck that carries blood to the brain). This is due to hardening of the arteries (atherosclerosis). Over the years plaque has built up inside the artery and has caused a narrowing. You have likely experienced symptoms which suggest that the narrowing is causing problems. This was probably a minor stroke (a transient ischemic attack (TIA), which may have been in the form of slurring of speech, facial droop, weakness, numbness, pins and needles or an intense sensation in the limb(s) on one side of your body or may have been temporary loss of vision in one eye (amaurosis fugax). This suggests that a further similar event or major stroke may occur.

If surgery has been suggested it is because the scans you have had have shown that the narrowing in the carotid artery is significant. Usually the operation will be performed if the narrowing is 70% or higher.

It is important to realise that the left side of your brain controls the right arm and leg and the right side of your brain controls the left arm and leg. The side that is being operated on is usually the opposite side to your symptoms.

## Benefits of the surgery

Significant reduction in the chances of stroke in the future which may be disabling or fatal.

## Risks of surgery

- 1-3% risk of stroke during or immediately after the operation (the severity of the stroke can be very mild causing little or no disability, through to severe causing major disability or death). All feasible precautions will be taken to prevent this
- Heart attack

- 1-2% risk of death
- Cranial nerve damage - injury of the hypoglossal, vagus, facial, glossopharyngeal nerves, which could cause incoordination of the tongue, difficulty swallowing, slurred speech or a hoarse sounding voice
- The skin around the wound site may become numb and, this may be permanent
- Haematoma
- Bleeding
- Bruising
- Chest infection
- Kidney damage
- Deep vein thrombosis (DVT)/Pulmonary embolism (PE)
- Wound infection
- Patch (additional material used to widen the artery which may be Bovine pericardium- processed lining of cow's heart or Dacron) infection

## How can I help myself?

The risk factors for developing disease in the arteries include smoking, high blood pressure, poorly controlled diabetes, high cholesterol and being overweight. By now, your risk factors should have been treated. You should be taking an aspirin or alternative antiplatelet tablet/anticoagulant and a statin to reduce cholesterol. If you have high blood pressure, you will have medication to control this. Eating a healthy diet and, if overweight, reducing your weight will help.

### Smoking

If you are still smoking it is important that you give it up completely. Smoking speeds up hardening of the arteries and increases your risk of stroke and heart attack. It can also raise blood pressure and reduces the amount of oxygen that reaches the body's tissues. There is help available to everyone who wants to give up smoking.

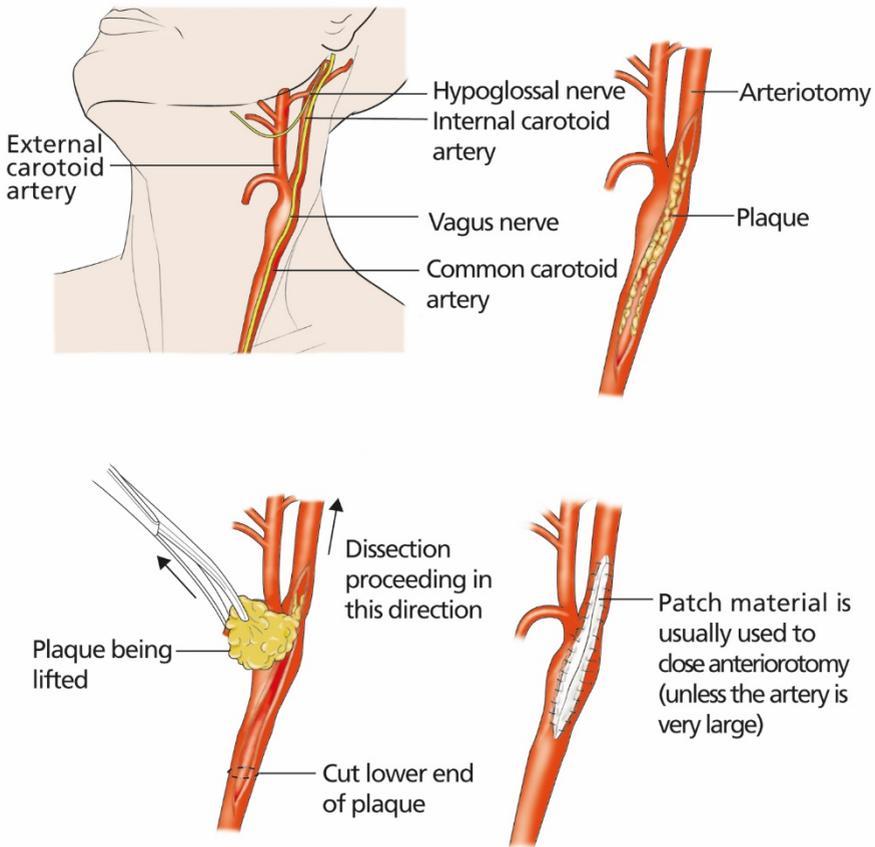
You can access this via your GP or local stop smoking service.

## Before your operation

You will have already had tests to find out how narrow your artery has become and what treatments are available.

If you are not already in hospital, you will be asked to attend the hospital for a pre-operative assessment before your operation. This will allow time for tests to be done to ensure you are fit for surgery. You will be able to talk to one of the vascular specialist nurses who will answer any questions you have. You will be given instructions as to the medication (If any) to stop taking before the operation.

You will be admitted on the day of the operation (a letter will be sent to you with instructions including when to stop eating and drinking). The nurses will help you prepare for theatre. The anaesthetist will visit you on the ward to discuss methods of anaesthesia. If you are diabetic, care will be taken to monitor and control your blood sugars. This may require a needle in your arm with a special drip called a sliding scale.



**The diagram above shows the steps of the surgery in a simplified fashion.**

## The operation

You will be taken to the anaesthetic room where your details will be checked, and you will be prepared for theatre. You will have some heart monitoring stickers placed on your chest, so the anaesthetist can monitor your heart during the operation. Your blood pressure and oxygen levels will also be closely monitored. You will have a tube in

your arm through which fluids and medication can be given and a tube in your wrist which allows accurate blood pressure monitoring.

The operation can be done under general anaesthesia (where you will be asleep throughout the procedure) but is often performed under local anaesthesia where you are not asleep. Local anaesthetic is injected directly into the skin on your neck using a small needle. This can sting at first but quickly becomes numb. Local anaesthetic works very well and patients usually only feel minimal discomfort from the operation site. Should you experience any pain please let the anaesthetist know.

Once you have been positioned comfortably, the surgeon will make an incision on the side of your neck to reach the carotid artery. Two small clamps will be placed on the artery above and below the narrowing prior to opening the artery, in order to control any bleeding. On preparing to place the arterial clamps and on application of the clamps the anaesthetic team will ask you some questions to assess your brain function. If you receive general anaesthesia a plastic tube (shunt) will be inserted into the artery temporarily to keep blood flowing to the brain. If you have a local anaesthetic this may not be necessary as the surgical team can talk to you and assess your condition so that a shunt placement can be performed only when necessary. Once the plaque has been removed the artery is closed, often with a patch to widen the artery slightly. The patch will consist of either processed lining of cow's heart (bovine pericardium) or Dacron (a type of fabric) this will be discussed with you during your pre-operative assessment. If you have any concerns or questions about the patch you can discuss them with your surgeon. You may also have a drain (a fine tube which is attached to a bottle which allows drainage of excess blood-stained fluid) in your wound, which is usually removed after 24 hours.

The operation usually lasts around one and a half to two hours. You can safely talk during the operation without disturbing the surgeon.

## After surgery

You will be kept under close observation, close to theatre, for a few hours in order to monitor your progress. If the anaesthetist feels that you need prolonged close monitoring, you may be required to stay in the high dependency unit overnight. Once you are stable you will be transferred to the ward. The nurses will monitor your blood pressure, pulse, temperature, respiration rate and oxygen levels (observations). They will also check the strength of your arms/legs and how your pupils react to light (neurological observations). Your wound will be carefully monitored and if you have a drain, the amount of fluid will also be monitored.

Painkillers will be given but do not hesitate to let the nurses know if you are still in discomfort. You will be asked to stay in bed overnight and rest but should be able to get up the next morning.

You can eat and drink as soon as you feel like it. If you are diabetic, your blood sugars will be monitored and you can take your normal medication once you start eating again.

You will usually be in hospital for 1-2 days but this will depend on your condition.

## Your wound

This will be carefully monitored and dressings will be removed and changed when necessary. The wound will be closed using either staples/stitches which need removing or you may have the kind of stitches that dissolve. The wound will probably be bruised and swollen but this will settle down in time.

## At home

If your wound has staples or stitches that require removing, this is usually done 5 -7 days after surgery. This can be done by your

practice nurse. The nurses on the ward will discuss this with you prior to going home.

**Bathing:** You may bath or shower as soon as your wound is dry, even if you still have stitches or staples.

**Work:** You may be able to return to work within 4 weeks of surgery depending on your condition. Please let the doctors know if you need a sick note prior to discharge.

**Driving:** You should have already been advised not to drive for one month following your stroke/ transient ischemic attack (TIA). You also need to be able to move your neck freely to allow a good view of the road behind you. If you are unsure wait until you are seen in the out-patients clinic.

Please visit the DVLA website:

[www.gov.uk/government/organisations/driver-and-vehicle-licensing-agency](http://www.gov.uk/government/organisations/driver-and-vehicle-licensing-agency) or contact them for more information on driving following a TIA or stroke.

**Follow-up:** You will be followed up in the vascular out-patients clinic approximately 4-6 weeks post operation. This will be at your local hospital.

## When to seek help

If you notice that your wound site is red, inflamed or discharging pus or fluid contact your GP immediately as you may require antibiotics.

If you develop a severe headache that does not go away with usual painkillers contact your GP or out of hours primary care team and your vascular team.

If you develop any new symptoms, especially localised to one side of the body or affecting your speech - seek immediate medical attention. Also dial 999 if you experience sudden chest pains or breathing difficulties.

Some swelling to the side of the neck that has been operated on is normal. However, if this does not settle down or you notice that the swelling is getting worse see your GP immediately or contact your vascular team.

**This leaflet is intended as a guide. Everyone is different and recovery may vary from one person to the next.**

## Contact details

Should you require further advice or information please contact:

### Vascular Specialist Nurses:

Preston/Chorley site - 01772 523757 or via switch board on 01772 71655 and ask for bleep 4605 or 4606.

Blackpool site: Via switch board 01253 300000 and ask them to contact the Vascular Specialist Nurse.

Royal Lancaster hospital: Via switch board 01524 65944 and ask them to contact the Vascular Specialist Nurse.

Furness General: Via switch board 01229 870870 and ask them to contact the Vascular Specialist Nurse.

### Vascular secretaries:

**Preston/Chorley/Blackpool/Lancaster/ Kendal /Furness General Hospital:**

Via switch board: 01772 716565

**Wigan Wrightington and Leigh:**

01942 264057 01942 822068

## Sources of further information

[www.lancsteachinghospitals.nhs.uk](http://www.lancsteachinghospitals.nhs.uk)

[www.nhs.uk](http://www.nhs.uk)

[www.patient.co.uk](http://www.patient.co.uk)

[www.accessable.co.uk](http://www.accessable.co.uk)

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On 31 May 2017 Lancashire Teaching Hospitals became a smoke-free organisation. From that date smoking is not permitted anywhere on any of our premises, either inside or outside the buildings. Our staff will ask you about your smoking status when you come to hospital and will offer you support and advice about stopping smoking including Nicotine Replacement Therapy to help manage your symptoms of withdrawal.

If you want to stop smoking you can also contact the Quit Squad Freephone 0800 328 6297.

Please ask if you would like help in understanding this information. This information can be made available in large print and in other languages.

**Cantonese:**

如果你希望以另外一種格式接收該資訊，請和我們聯絡，不必猶豫。

**Gujarati:**

જો તમને આ માહિતી બીજી રચના કે ફોર્મેટમાં મેળવવાની ઈચ્છા હોય, તો કૃપા કરી અમારો સંપર્ક કરતા અચકાશો નહિ.

**Hungarian:**

Kérjük, vegye fel velünk a kapcsolatot, ha más formában kéri ezt az információt.

**Polish:**

Jeżeli chciał(a)by Pan/Pani otrzymać niniejsze informacje w innym formacie, prosimy o kontakt.

**Punjabi:**

ਜੇ ਤੁਸੀਂ ਕਿਸੇ ਹੋਰ ਫਾਰਮੈਟ ਵਿਚ ਇਹ ਜਾਣਕਾਰੀ ਲੈਣਾ ਚਾਹੁੰਦੇ ਹੋ ਤਾਂ ਸਾਡੇ ਨਾਲ ਸੰਪਰਕ ਕਰਨ ਤੋਂ ਨਾ ਝਿਜਕੋ।

**Urdu:**

اگر آپ اس معلومات کو کسی اور صورت میں حاصل کرنا چاہتے ہیں تو برائے مہربانی ہم سے رابطہ کرنے میں ہچکچاہٹ محسوس نہ کریں۔

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**Division:** Surgery

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