

The Christchurch Department of Vascular Surgery is actively involved in research projects aimed at improving treatment for patients with arterial disease.

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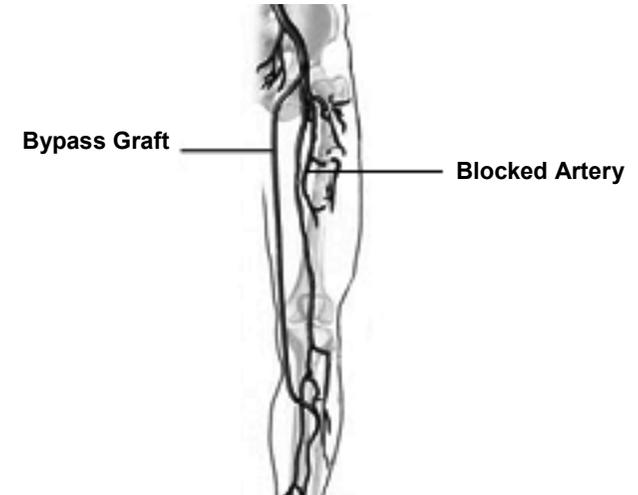
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ARTERIAL BYPASS GRAFTS IN THE LEG

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BYPASS SURVEILLANCE

For bypass grafts with veins, and some others, we arrange scanning in the Vascular Laboratory every few months during the first few years after the operation. In this way we may be able to detect problems developing in the bypass before they cause a blockage, and can arrange for the bypass to be maintained and prevented from failure. We will advise you whether this is necessary in your case, and will send you appointments periodically for the surveillance scans.

situation is less urgent, but we would still like to see you within a day or two. It is often easiest to approach your doctor urgently who will then contact the vascular surgical team. Contact details for the vascular team are at the back of this booklet.

What can you do to protect your bypass graft ?

It is essential that you **do not smoke**.

Take regular exercise.

Eat healthily

Take your prescribed medication — we will make sure that you are on the correct medication that both protects the graft and reduces your risk of other vessel diseases.

Avoid crossing your legs, kneeling, or crouching for prolonged periods.

Avoid tight items of clothing, stockings or bands around the leg.

INTRODUCTION

This booklet provides some useful information about Arterial Bypass Grafts. Important information about **how to prepare** for surgery, **what to expect** afterwards, and **what to look out for** in the future is included. We hope you make a rapid recovery after your operation and you experience no serious problems. However, it is important that you should know about problems which can occur. This is included in this booklet. If you have questions about the surgery speak to your doctor, or use the contact details on the back of this booklet to contact the Vascular Department, for advice.

What is an arterial bypass graft?

An arterial bypass graft is a surgical treatment used to deliver blood around a blocked artery to the tissues beyond - bypassing the blockage in the artery. To do this surgeons need to tunnel under the skin either a manufactured tube or, more frequently, a length of the patients **own vein** and connect it to the artery above and below the blockage (see diagram on front of booklet). The veins we use as bypass grafts are from just under the skin in the leg or the arm, and are easily removed without causing lasting problems. Manufactured grafts are made from a plastic called PTFE.

Why might you need an arterial bypass graft in the leg?

Blocked arteries in the leg can produce different symptoms depending how seriously the blood flow is affected.

The least serious symptom caused by reduced blood flow is pain in the leg muscles (usually the calf) on walking a certain distance. This is called intermittent claudication. Bypass grafts are only done for intermittent claudication if symptoms are very bad and have not improved with simple measures. These measures should be discussed with you.

If the blood flow is more seriously reduced, then the toes or foot may become **painful at rest**, particularly at night. **Painful ulcers** or cracks may develop on the foot and have **difficulty healing**. Skin on the foot and toes may die and become black (**gangrene**). These are all an indication that the blood supply to the leg is so bad that it will not survive unless the blood supply is improved. The patient risks amputation of that limb. An arterial bypass is used to deliver more blood to the lower leg and foot to try to avoid amputation of some or all of the lower leg.

People with **diabetes** are more prone to blocked arteries and often develop poor feeling sense in their feet. They are at increased risk of developing ulcers and infections in the foot. Arterial bypass grafts are sometimes used to improve the blood flow with the hope of improving symptoms, helping with treatment of infection and encouraging healing.

Bypass grafts are occasionally used for people who develop ballooned or dilated arteries (**aneurysms**) in the legs to prevent future problems or who suffer an **injury** to an artery and need blood supply to be restored to prevent long-term disability.

BLOCKAGE OF THE BYPASS GRAFT

How do you know if your graft has blocked?

There will usually be fairly sudden and obvious signs of reduced blood flow - a cold, pale and often numb or painful foot. If the reduced blood flow is less serious then you may simply get calf pain on walking, or the old symptoms returning.

If a bypass graft blocks, there is a chance that your leg may remain improved, but it is most likely that you would "go back to square one" with symptoms just like those before the operation. There is a chance of about one in four that your leg would be worse and even a chance that you would require an amputation of the leg because the blood flow becomes so bad. This chance is small, but it is important that everybody understands the risk before embarking on a bypass graft.

Blockage is always a risk and affects about one graft in ten during the first day or so after the operation. After that time there is still a risk that grafts may block. Overall the risk of the bypass blocking is about one in three for the first two years.

Vein bypass grafts tend to do better than manufactured grafts, shorter grafts of any type do better than longer ones, and if the natural arteries beyond the bypass graft are good then the bypass will tend to last longer. The risk of blockage is highest for narrow manufactured bypass grafts that have to be taken a long way down the leg towards one small artery in the foot. We will advise you about this in detail before the operation.

Occasionally patients have a chance of further bypass if the first should fail over time, but the risks and complications tend to be higher.

What should you do if you think your graft has blocked?

Do not delay. If your foot is cold and pale you should return to hospital immediately, either through the Accident and Emergency Department, where you will see the duty surgical team, or to your GP who will advise you. If you have simply developed calf pain again, the

What other after effects will there be?

The wounds are likely to be uncomfortable to start with, particularly as you get up and about. You should take painkillers as prescribed by your doctor. Your leg will be quite stiff, but this will improve as you gradually get moving.

There is often bruising in the area of the operation and sometimes a collection of blood (haematoma) can form beneath the wound. This will settle gradually on its own as the body absorbs the blood clot.

Swelling of the leg is quite common after bypass grafts. A degree of swelling is normal after any operation and if your leg and foot have been very short of blood, then improvement in blood flow makes the tissues swell. This swelling usually settles over a period of a few weeks to months but some people are left with a slightly swollen leg in the long term, particularly if the vein has been used or if there have been previous operations in the same leg.

Damage to small nerves under the skin can lead to numbness of areas of skin on the leg. Most commonly this affects the skin over the inner side of the lower leg, ankle or foot. The feeling often comes back but may be areas that remain numb. Recovering nerves can create a feeling of pins and needles for several weeks at a time, but gets better.

BEFORE THE OPERATION

The right habits

If you are a smoker, then by far the most important preparation for a bypass graft is to **completely stop smoking** and to never start smoking again. Smoking cigarettes causes more problems with having an anaesthetic, problems with wound healing, increased risk of infection and causes bypass grafts to block more frequently and earlier. Advice on how to stop smoking is available from your GP, from local pharmacists, online or from the nursing staff. **Eat a healthy** nutritious diet and **keep as active** as possible. This will give your body the building blocks to heal to its best ability, and will get you recovering quicker.

The right medications

We will advise you about any other medical problems which need to be dealt with before bypass grafting including a recommendation on what drugs will benefit you in the future to help the graft to continue to work and to reduce the risks to your overall health.

The right tests

You will need to have had some investigations for the diseased arteries by either ultrasound scan, CT scan or angiogram. Some patients will have had some of each test. These are usually performed before the decision to offer arterial bypass, but might need to be repeated if there have been recent changes. These images allow the surgical team to plan whether to perform the procedure and where the bypass will be placed to improve the symptoms. We will show you these pictures, explain the procedure, and the pros and cons of a bypass in your particular case.

You will be invited to a “pre-admission” clinic several days before the procedure. You will be assessed for fitness for anaesthetic. Any blood tests or tests of heart and lung function that might be required before the operation can be ordered from the pre-admission clinic and in time for your surgery.

ADMISSION TO HOSPITAL

What happens when you come into hospital?

You will usually come into the Day Of Surgery Admissions Unit on the day of the operation, occasionally to the Vascular Ward on the day before.

If we plan to use one of your own veins for bypass you will have a scan, during which the skin of your leg will be marked with a pen showing exactly where the vein is. This step is often performed in the operating theatre rather than before hand. Previous investigations will have shown the surgeon whether there is a suitable vein to use.

Staff will prepare you for theatre and you are seen by members of the surgical and anaesthetic teams. Once final checks are made you will be taken to the theatre complex.

What happens during the operation?

At the time of your operation you will have a number of incisions on the leg. If you have a manufactured graft, two incisions only are needed (one at the top and one at the bottom - often about 10-15 cm long). If we use your own vein for a bypass graft, then you will have several incisions down the leg, some might be fairly long. The bypass is connected above and below the blocked artery and tested to ensure that it is flowing well. Sometimes an Xray image is taken in theatre to confirm that the bypass is working adequately. The incisions will be closed with stitches under the skin which dissolve. Sometimes sutures or staples will be used that need removing after a couple of weeks.

After the operation you will usually have a drip and sometimes a catheter is inserted into your bladder. Occasionally, we will use one or more fine plastic drains which remove blood or fluid from the areas where the operation has been done and which are usually removed within a day or two. A blood transfusion may be necessary during or after the operation.

AFTER THE OPERATION

What can you do after the operation?

You will do no harm by starting to move your leg and foot about in bed as soon as you wish after the operation. We encourage you to get moving as quickly as you can. We will usually try to get you out of bed on the day after the operation. It does no harm to try to walk on the leg, although you may find this uncomfortable to start with, and it might be difficult if there are drips, drains or catheters in place; we will give you painkillers to help and remove drips and drains at the earliest opportunity. Pain from the operation usually settles quickly and you should be walking about slowly within the first few days.

How long will you be in hospital?

In some cases this may be as short as four or five days, but it is usual for people to be in hospital for a week or so after this kind of operation. Clearly if problems arise during the recovery period it may take longer. If the foot was seriously short of blood and had become damaged before the operation, then you may need to stay in hospital longer for rehabilitation. If you have concerns before you are discharged please tell a staff member so they can be addressed before you go.

When can you bath or shower?

Usually you can start to bath or shower about three or four days after the operation. Your team will be able to advise you about this.

What happens when you go home?

You can be as active as you like when you get home. It is important that you try to walk about fairly frequently during the day. Your leg should feel warmer and more alive than before but you are likely to become easily tired at first. The more often you can walk about and the more active you can be, the more rapidly you will get back to normal. If clips or stitches still need to be removed, we will arrange this with the district nurse.