CASTLEVIEW CLINIC

PATIENT INFORMATION LEAFLET

Anterior Cruciate Ligament (ACL) Reconstruction

Overview

What is an Anterior Cruciate Ligament (ACL)?

There are two important structures within the knee called anterior and posterior cruciate ligaments. 'Cruciate' comes from the Latin word 'crux', meaning cross. They are so named as the two ligaments cross over each other inside the knee. A ligament is a strip of strong tissue that holds bones together where they form a joint. The ACL holds the bottom end of the femur (thigh bone) to the top end of the tibia (shin bone) thus stabilising the knee joint. It controls movement of the knee in multiple planes to prevent the knee from collapsing and giving way when you twist or 'pivot'.

How does it tear?

ACL tear (rupture) is a common injury. It is thought that there are approximately 35 new injuries for every 100,000 people per year. During certain movements the ACL is subjected to a large amount of force. This often happens as the athlete changes direction while running at speed and is described as a classic non-contact injury. It can also occur in a contact injury if the knee is forcibly twisted by an opponent, in a tackle or collision. When that force exceeds the tensile strength of the ligament it tears. People often describe feeling a pop when it ruptures and in some cases this can be heard. When the tissue tears it usually causing bleeding into the knee and swelling occurs straight away. Most athletes are unable to continue playing in the game. ACL rupture should be suspected if a knee is inured in this way.

What are the benefits of an operation?

Some people can manage quite well with a ruptured ACL; however in others the knee may 'give way' or 'pivot'. This movement can occur in simple day-to-day activities or when trying to perform sports. If these abnormal movements go on for many years it can cause subsequent damage to other structures within the knee most importantly the cartilage, which protects the knee.
Rupture of the ACL is a serious injury to the knee and has become a common problem with increasing levels of sporting activity professionally, at school and in leisure time.
The goal of the surgery is to 'stabilise' the knee once again to prevent the abnormal movements. The native ACL is a highly complex structure and can never be replaced 'as good as new' but a successful reconstruction can return patients to sporting activities.

What would happen if I did not have an operation?

If the ligament is not reconstructed, particularly in the young active patient, then the knee may continue to give way making it liable to further damage. The injury to the ligament together with further associated damage may increase the risk of arthritis developing in later life although this does not always happen and the natural history of this is still not clear. Surgery will not necessarily prevent joint arthritis occurring but it is reasonable to believe that further damage to the joint will be reduced if the surgery is successful.

Are there any alternatives?

Activities that cause the knee to be unstable can be avoided. Physiotherapy can help to strengthen the knee muscles to give a degree of stability following a rupture of the ACL. Some patients, particularly those who do not do sports, are able to continue without surgery, but for those who want to return to a sport then the knee may not be stable enough.
Achieving a stable knee without an ACL does require a large amount of hard work and dedication to muscle strengthening and balance training. This is achieved over a period of months rather than weeks.

What does the operation involve?

The body's own tissues can be used to make a 'graft' to replace the anterior cruciate ligament.
The three most commonly used are:

1. Hamstring Tendons from the inside of the same leg
2. Patella Tendon from the front of the knee
3. Allograft: a sterilised Donor Tendon from a deceased person.

Mr Bourke will discuss with you prior to surgery which type of graft he will use and why.

The new ligament is inserted into tunnels drilled into the femur and tibia using a 'key-hole' (arthroscopic) technique. Once in place, it is secured with a tiny, titanium button and a small screw both of which remain inside the bone.

How long after the surgery can I return to normal activities?

Most of the time you will leave hospital after the surgery on crutches but fully walking on that leg. Walking without crutches can occur once you feel confident to do so. Mr Bourke will advise a minimum of two weeks off work but working from home can be done after the first week. Heavy manual work must cease for 8 weeks.

Gentle gym work can begin with the supervision of a physiotherapist after 2 weeks and you can begin a gentle jog on a treadmill if all goals have been met by 8 weeks. Unsupervised running is not recommended before 12 weeks post-surgery.
Sporting activity generally can be commenced after 9 months (12 months for patients 18 years and under) if all your rehabilitation goals have been met.

How successful is the operation?

After ACL rupture the knee will never been the same again. However, a successful operation and dedicated rehabilitation programme will return the knee to a high level of function once again. The failure rate (re-rupture) of the 'graft' is approximately 5%. This may be more or less depending on your age, gender and the longevity and level of sporting activities achieved.

What to expect when having an ACL Reconstruction?

What happens before the operation?

It is of importance that the knee is in good condition at the time of surgery. If the knee is swollen or stiff, the results of the reconstruction are not as good. It is important that the quadriceps muscle at the front of the thigh, and hamstring muscles at the back of the thigh are as strong as possible at the time of surgery. There should be full range of movement in the joint especially straightening the knee. Activities such as swimming and cycling are preferable to running and jogging to reduce the weight-bearing load on the knee.

As your knee is unstable it is advisable to avoid the following movements:

1. Turning sharply on your knee
2. Twisting
3. Jumping
4. Sharp acceleration and deceleration
5. Change of direction at speed and walking
6. Jogging or running on uneven surfaces.

On the day of surgery

You will be admitted to hospital 1-3 hours before the procedure on the day of your surgery. You will initially meet the nursing staff who will get you changed and do the required checks on your health (blood pressure pulse etc.) and your medication (if you take anything regularly). You will then have a brief chat with Dr Uthappa Belliappa, the Anaesthetic Consultant, to ensure your optimal safety for the anaesthetic. It is important to tell him all of your relevant medical history and whether you have any allergies to medications or have had any problems with anaesthetics in

the past. Mr Bourke will then meet you once again to ensure all your questions have been answered and will place a black pen mark on the leg to be operated on. This is an important part of our on-going safety procedures. Mr Bourke will then ask you sign a consent form which is a record for the hospital that you understand the procedure being carried out and the potential risks and complications.

Potential Risks and Complications

All operations carry some risks. The risks associated with ACL reconstruction of the knee are uncommon but can occur. The most important of these are:

- Infection (1%)
- Stiffness of the knee
- Numbness of the skin around the wounds and particularly down the inside of the shin (usually temporary, occasionally permanent)
- Graft failure (5% if a primary procedure)
- Nerve or vessel damage
- Deep Vein Thrombosis (DVT) & Pulmonary Embolus (PE) – if you are have had a blood clot before, have a high Body Mass Index (BMI) or have a family history of blood clots we will usually recommend temporary cover to reduce the risks (usually an injection of heparin)
- On-going pain
- Medial collateral ligament damage
- Anaesthetic risks (your anaesthetist will discuss these with you separately).

Outline of the Procedure

Once you are safely anaesthetised your knee will be washed with antiseptic solution, which may stain the skin pink or orange for a few days. A tourniquet is then applied to the thigh to prevent bleeding during the operation. The leg and knee may also be shaved at the front to optimize that cleaning process. Generally most procedures last 45-60 minutes if straightforward but you will be away from your room for much longer than that as there is also anaesthetic time, set-up time and then 20-30 minutes in recovery. Other procedures carried out at the same time such as cartilage repair may add another 45 minutes to the operating time.

The old ACL is removed and a new ACL is made using one of three ‘grafts’:

1. **Hamstring tendons** which can be felt as firm cords at the back of the knee on the inner side running up the thigh. The hamstring tendons used are called gracilis and semitendinosis. They can be taken from the thigh through a small incision at the front of the knee. You can manage perfectly well without them and MRI studies have shown that they do grow back. Mr Bourke uses hamstring tendon graft for approximately 90% of his ACL reconstructions.

2. **Patellar Tendon** which runs from the bottom of the patella (kneecap) to the top of the tibia (shinbone) at the front of the knee. The central one-third of the tendon is used leaving behind two-thirds which can adequately control the normal motion of the knee. This gives you a vertical scar down the front of the knee.
3. **Allograft** in some instances a frozen piece of tissue from another person can be used. This is often because the hamstrings tendons or patellar tendon has already been used in that patient. These tissues are obtained from a company which tests all tissues for transmissible viruses (such as HIV and Hepatitis viruses) prior to use. They are widely accepted now to be safe for use in this operation.

Mr Bourke will discuss which graft he will use for your knee and the reasons why in your clinic appointment prior to surgery.

Tunnels are drilled in the bone and the 'graft' is fixed with a small titanium button and a screw. These devices will remain in the body permanently.

At the end of the operation, the small wounds will be stitched internal with a dissolving suture. The knee is then wrapped up with a sterile, stretchy bandage.

Recovery

After the surgery, you will be taken to the recovery room and eventually back to the ward. You will be given an instruction sheet outlining your post-operative care and also a photos or a video of your procedure. More detailed findings of your surgery will be given to you at your post-operative appointment which will be made for you approximately 14 days following the surgery.

Mr Bourke's patients do not routinely have a brace on the knee after surgery but this may be required if the procedure is a revision case or if you have had cartilage surgery at the same time.

Discharge from Hospital

- You will be required to stay in hospital for at least 2-3 hours following your procedure for safety reasons to ensure the anaesthetic has worn off and there has been no initial complication
- You will be discharged from hospital after you have had an Xray of your knee (a routine check) and once you have seen the physiotherapist
- You must have someone available to drive you home from hospital
- You must not operate machinery or drive a car for 24 hours after your procedure
- You should have a responsible adult with you at home for at least the first 24 hours.

Early Recovery Period

- In most cases you will be fully mobile (walking without crutches) from the day you leave hospital. It is important to rest with the leg up however particularly in the first 48 hours to prevent swelling and on-going bleeding.
- You must see a physiotherapist in the first two weeks to begin your exercise programme. The knee is naturally stiff after the procedure and getting the range of movement gently back is vital. This must be combined with an adequate amount of rest to allow the knee to heal. The wounds will heal in 10-14 days. We advise you leave the dressings undisturbed until review at you post-operative appointment. The dressings are waterproof but it is advisable to protect them when you shower with a few wraps of simple kitchen cling film or there are ready made protective garments that can be purchased.
- In certain cases, (if micro fracture or cartilage repair has been performed) Mr Bourke may ask you to be non-weight bearing on crutches for set period of time. This will be made clear to you before your discharge.

What to do if the wounds bleed?

- A small amount of bleeding after ACL reconstruction is quite common. Most of the time it will stop on its own. The knee is expanded at the time of surgery with salty water (saline solution). A small amount of this remains in the knee after surgery and can leak out through the portals in the first 24-48 hours. It is often blood-stained when it leaks out and can soak into the dressings.

Steps to follow if bleeding occurs:

1. Sit down or lie down and elevate the leg to the to the height of your hips and try not to bend the knee for 30-40 minutes
2. Apply pressure to the wound with a firm bandage or dressing
3. Apply ice on top of the bandage
4. Once the bleeding stops the dressings if soaked through can be changed for fresh ones. You will be provided with spare dressings to take home. Extra dressings can be purchased from most chemists/pharmacies
5. If the bleeding doesn't stop please telephone the ward. The telephone number will be in your discharge pack given to you by the hospital.

Post-operative appointment

It is important that you attend this appointment usually scheduled 12 -14 days after surgery. It will allow Mr Bourke to check your wounds and the recovery of the knee. He can then discuss the

findings and on-going management with you. He will then routinely see you after and other 6 weeks and then again at 6 months.

Physiotherapy

Mr Bourke will provide you and your physiotherapist with a specific rehabilitation protocol. You will need to see a qualified physiotherapist regularly after the procedure to ensure your recovery is going to plan. It is recommended that you see a physiotherapist

- once prior to the surgery (prehabilitation)
- once weekly after the surgery for the first 6 weeks
- once monthly after that until 9 months.

This usually will mean around 12 sessions in total. Most insurance companies will recognise this and cover the costs of these visits.

The rehabilitation programme is essential and information leaflets can be downloaded by patients and physiotherapists from the website www.castleviewclinic.com

Return to normal activities

When can I return to work?
You may return to sedentary work (non physical) at approximately 2-3 weeks. However return to light physical work should be delayed for at least 6 weeks and heavy physical work for 3 months following surgery. You should discuss your return to work with your surgeon or physiotherapist. It is advisable to start with light duties first.

When will I be able to drive?
Driving should be possible at 6 weeks. If you drive an automatic car and have had your left knee operated on, you can drive after 2 weeks.

Contact Details

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