NHS
Greater Glasgow and Clyde

Information about

Anterior Cruciate Ligament Repair with the Internal Brace

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Invitation:

We are offering you the opportunity to have a relatively new procedure on your knee to treat an Anterior Cruciate Ligament (ACL) injury. Before you make any decisions it is important that you understand the surgery and what it will involve. Please take time to read the following information carefully, and discuss it with your surgeon, GP, friends and relatives if you wish. Ask us if there is anything that is not clear or if you would like more information. Please take your time to decide whether or not you wish to take part.

Thank you for reading this.

The Anterior Cruciate Ligament (ACL)

The Anterior Cruciate Ligament is a long band of tissue that connects the femur (thigh bone) to the tibia (shin). It helps to stabilise the knee.

ACL injuries

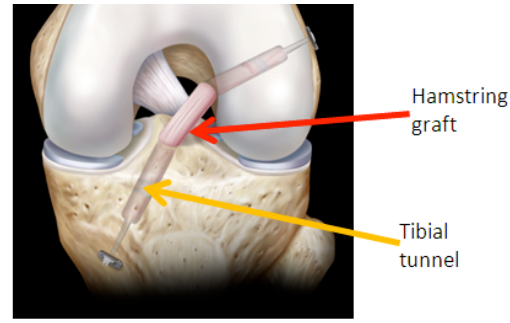
ACL injuries are common, particularly in young active individuals. The ACL is often stretched and, or torn during a sudden twisting motion (the foot stays planted in one direction, but the knee turns the other way). Sports with a high risk of ACL injury include football, skiing and basketball. Males tend to participate more frequently in sports that are associated with a high risk of ACL injury, but females are up to three times more likely to sustain an ACL injury during like for like activity than males.

ACL Reconstruction Surgery

The current 'Gold' standard treatment for an ACL tear is ACL reconstruction. Traditional ACL reconstruction surgery involves replacing the torn ligament with a graft using the patient's own hamstring or less commonly patellar tendon (the kneecap) The technique is normally carried out arthroscopically (keyhole surgery) and usually involves removing any remaining ACL, without any attempt to repair the ligament (figure 2).

Figure 1:
Anterior Cruciate

Figure 2:
Anterior Cruciate Ligament Reconstruction



ACL remnants are removed and a Hamstring graft is passed through drill holes in the Tibia and anchored to the tibia and femur.

Although traditional ACL reconstruction surgery with graft restores knee function it does not produce a 'normal' feeling knee, with loss of proprioception (knowledge of the position of the knee and leg in space) a particular problem. Loss of proprioception is important as this mechanism provides feedback to the muscles surrounding the knee to help limit knee movement and prevent overloading of the ACL graft. Loss of proprioception may also play an important role in the confidence that athletes have in their knee after ACL reconstruction. It is estimated that less than 50% of patients return to sport after ACL reconstruction and those that do often find that they cannot perform at the same level as before their injury or surgery.

Reconstructive surgery using tissue harvested from the patient can lead to muscle weakness with hamstring grafts and pain at the front of the knee with patella tendon grafts.

Studies on how well traditional ACL grafts do in the long term suggest that 1 in 9 patients will experience graft failure and need more surgery.

A number of variations have been introduced to the ACL reconstruction technique such as the use of double bundle rather than single bundle graft, retention of the remains of the ACL and variations in graft fixation techniques. However, none of these variations have been shown to make significant difference to the results of the surgery.

It is for these reasons that we are interested in new techniques to improve the outcomes of ACL surgery.

ACL Repair with an Internal Brace

Rather than replacing the torn ligament, this new technique involves repairing the ACL where it has pulled off from its attachment on the femoral side of the knee.

We believe that around 70% of ACL injuries might be suitable for repair and that repair might be possible for up 3 months following injury.

The ACL repair technique is very similar to traditional ACL reconstruction surgery using hamstring grafts. You will have:

- the surgery as a day case which means that you don't have to stay overnight
- keyhole surgery. The surgeon will drill holes in the tibia (shin) and femur (hamstring) to repair the ligament and attach the internal brace.

The surgeon stitches the torn ACL ligament together and then protects it using a 2.5mm polyethylene tape (the Internal Brace), which allows healing to occur. (Figure 3 and Figure 4).

Figure 3:
Keyhole surgery view of the healed ACL following repair and Internal Brace

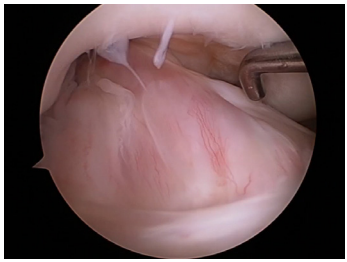
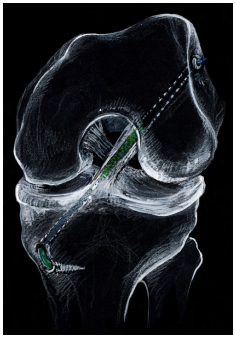


Figure 4:
ACL repair with the Internal Brace



Why have I been chosen?

You have sustained an ACL rupture and are thought to require surgery to the knee to stabilise the knee joint. You have been identified as a potentially suitable person to undergo this new procedure of ACL repair.

Do I have to take part?

No you do not have to take part if you do not wish to. It is purely voluntary whether or not you decide to take part. If you decide not to take part this will not affect your care in any way.

After the surgery

You will need physiotherapy for several weeks after surgery. It may be several weeks or even months before you are able to get back to work, particularly if you have a manual or heavy job.

Follow up

You will have follow up appointments at the outpatient clinic (3 months and 1 year after your surgery), or more often if you are having problems.

We will also ask you to record your experiences on the National Ligament Registry, who will email you at regular (but infrequent) intervals to monitor your progress after 1 year.

What are the possible risks or disadvantages?

If you want to go ahead with ACL repair the surgery will have to take place within 3 months of your injury, whereas traditional ACL reconstruction can be delayed and done at any time, e.g. if the timing does not suit your work or home life.

The risks associated with this new technique are low.

Should the ACL repair fail, then a traditional ACL reconstruction can be carried out using the same tunnels used for the ACL brace. The tunnel used for the ACL repair is narrower than that used for a reconstruction and therefore the tunnel can easily be widened to accommodate an ACL reconstruction. However, you would need a second surgery should the repair fail to heal properly.

The risks include infection, blood clots, nerve and vessel injury, bleeding and fractures associated with any surgery on the knee, but these are not thought to be any greater than with traditional ACL techniques and altogether these risks are all very low.

What are the perceived advantages of the ACL Internal Brace?

The potential benefits of the ACL Internal Brace include:

- maintaining proprioception (knowledge of the position of the knee and leg in space)
- avoiding problems associated with hamstring grafts,
- more normal knee movements and
- decreased risk of developing early osteoarthritis.

There might also be faster recovery as the ligament heals by direct fibrous repair rather than the slower process seen in ACL reconstruction.

This novel approach to ACL repair has been piloted by Professor Gordon Mackay and early results suggests that results from this technique are at least as good as outcomes achieved using traditional ACL reconstruction with hamstring grafts.

What if there is a problem?

If you have concern about any aspect of the ACL repair, you should ask to speak with one of the members of the research team who will do their best to answer your questions. If you remain unhappy and wish to complain formally, you can do this through the NHS Complaints Procedure. Details are listed at the end of this information leaflet.

Who has reviewed this new procedure?

This study has been reviewed by the
Orthopaedic Clinical Governance Group
North Sector
Glasgow Royal Infirmary
84 Castle Street
Glasgow, G4 0SF

Should you have any further questions or require further information about the new procedure Please contact Mr Mark Blyth, who is the Consultant Orthopaedic Surgeon assessing the new technique:

Mr Mark Blyth (Consultant Orthopaedic Surgeon)
Orthopaedic Research Unit
Glasgow Royal Infirmary
Gatehouse Building
84 Castle Street
Glasgow, G4 0SF
Tel: 0141 211 4107

If you would like independent advice on taking part you can contact Mr Senthil Kumar who is an Orthopaedic surgeon, but who is not involved in performing this type of surgery.

Mr Senthil Kumar (Consultant Orthopaedic Surgeon)
Orthopaedic Department
Glasgow Royal Infirmary
Gatehouse Building
84 Castle Street
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If you have any complaints regarding your care you can contact Mr Mark Blyth (contact details above) or alternatively the complaints Department:

Phone: 0141 201 4500 (for complaints only)

E-mail: complaints@ggc.scot.nhs.uk

Thank you for taking the time to read this information and for considering taking part in this new procedure.

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