University Hospitals
Coventry and Warwickshire
NHS Trust

Orthopaedics

Trochleoplasty

Introduction

You are reading this leaflet because you and your orthopaedic surgeon have decided that this procedure may be of some benefit to you. It is intended to help you understand the operation and what to expect if you decide to go ahead with the procedure.

We hope that it will assist in reducing any anxiety you may have, answer some of your questions and offer some practical advice.

It is not intended to be a comprehensive guide, and it is essential that you discuss any further queries that you may have with your consultant surgeon.

What is the trochlea of the knee?

As you bend and straighten your leg, the patella, or knee cap, glides in a groove at the end of your thigh bone (femur) known as the trochlear groove of the femur. The main function of the patella is to increase the strength of your quadriceps muscle that extends (straightens) your knee.

The concavity of the trochlea provides a channel like groove for the patella to track smoothly within as the knee bends, while also providing added stability to the knee joint. Without the trochlea, the patella would slip off the side of the knee, a condition known as patellar instability, or dislocation.

What is trochlea dysplasia?

An abnormally shaped trochlear groove is known as trochlear dysplasia, and is one of the main factors causing patellar dislocation. In this condition

the trochlea can be either flat or dome shaped. Therefore the trochlea is too shallow for the patella, and hence does not provide the normal boney support for stability, causing the patella to slip out of the groove or dislocate.

This can give patients a sensation of giving way, and anxiety when performing daily and sports activities. Trochlear dysplasia also causes knee pain during activities that involve bending the knee such as walking up or down the stairs or running. In the long term, the abnormal movement of the patella on the femur can lead to the development of wear and tear of your joint surface known as osteoarthritis.

Figure 1

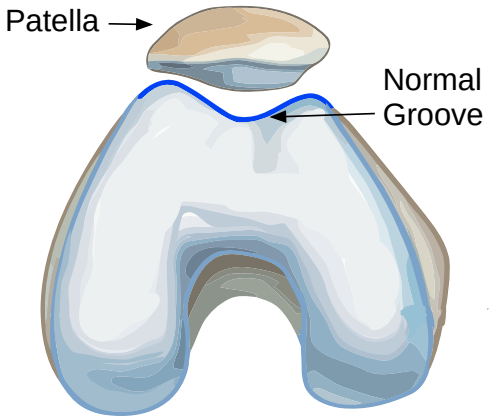

Figure 2

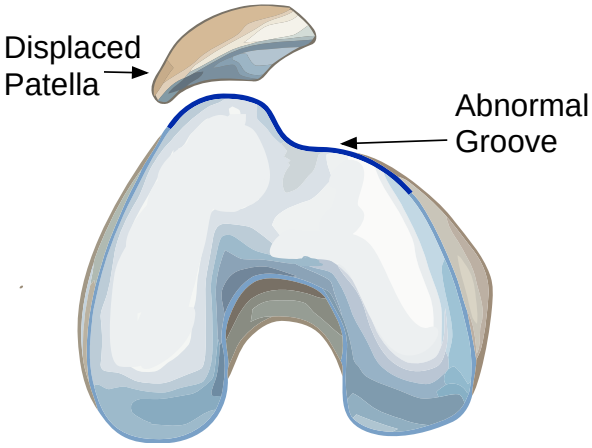

Figure 1: Illustration of a normally shaped trochlear groove with the patella in the correct position.

Figure 2: An abnormal groove with a displaced patella.

What is trochleoplasty?

- Trochleoplasty is a surgical procedure that creates a groove in the trochlea to prevent recurrent patella dislocations, and the associated pain and disability.
- The procedure will be performed under a general anaesthetic.
- A surgical cut, known as an incision, of about 10cm in length will be made in the front of your knee to expose your knee joint.

- A thin flap of the cartilage in your knee joint will be lifted away to expose the bone beneath it.
- This area of bone will then be reshaped to create a new groove.
- The flap of cartilage will then be laid back down. The cartilage is usually malleable enough that it conforms to the shape of the new groove that was created.
- The flap will then be fixed in place with some dissolvable suture tape.
- The wound is then stitched up.

Local anaesthetic is injected into the knee and around the incisions so your knee should be comfortable when you wake up. The knee will be bandaged and you will be sent to the recovery room to wake up from the anaesthetic

Occasionally, some patients may need additional surgical procedures such as ligament reconstruction to improve the stability of the patellofemoral joint (see below in alternative options).

Benefits and outcomes of the surgery

Approximately 90% of people who undergo trochleoplasty are happy with the result. It is a very reliable procedure for stabilising the patella, with many people being able to lead a more active lifestyle after the surgery.

Often, the knee is more comfortable than before. Most patients experience fewer symptoms during activities of daily living and an improved quality of life.

Risks

As with any operation, there are potential risks involved but the chances of complications occurring is very low. These include:

- A very small risk associated with general anaesthetic – this can be discussed with your anaesthetists
- Wound problems such as slow healing and oozing – less than 2%
- Infection sometimes requiring antibiotics – less than 2%

- Stiffness requiring extensive physiotherapy – less than 5%
- Blood clots requiring six months treatment with blood thinning tablets, sometimes causing long-term leg swelling or severe breathing problems - less than 1%.

It is normal to have some numbness around the scar and to have swelling of your knee after the operation. There is a chance that despite the operation the patella is still a bit unstable. If this is the case, further procedures may be required at a later stage.

What are the alternatives to a trochleoplasty?

The first alternative is to do nothing at all and to continue with the physiotherapy and exercises that you may be already doing to strengthen the muscles that support the patella. You may be happy just to accept the problem and not go through with any surgery.

Surgical alternatives do exist and have shown varying levels of success.

To aid stability of the patella there are a number of soft-tissues that attach to it. These structures can weaken over time particularly if there is little stability provided by a flat trochlear groove.

Of the soft tissue structures that stabilise the knee, the Medial Patellofemoral Ligament (MPFL) is by far the most important and accounts for the majority of the stabilising strength. The MPFL is a thin strip of tough connective tissue that attaches from the inside edge of your patella to the inner side of the lower end of your femur. It acts as an anchor and helps prevent the patella from sliding out of its groove. Surgical repair or reconstruction of the MPFL to prevent the feeling of giving way and the recurrent dislocations may improve the situation.

Another option is to perform a lateral release of the tissues that attach to the outside of your patella. On its own this operation is rarely successful and you are unlikely to notice much improvement. However, this can be carried out in addition to MPFL reconstruction and this can improve the success of the operation.

Another alternative is to move the attachment of your patella tendon where it inserts into the top of the shin bone (tibia). This changes the angle at which your patella is being pulled and can therefore make it more likely to be stable. This is a larger operation than an MPFL reconstruction and has a longer period of rehabilitation. This operation is only an option when the angle of pull of the muscles is the cause of your problem.

You will need to discuss with your surgeon as to whether this would be a suitable alternative for you.

What happens before surgery?

Once surgery has been agreed, you will be asked to attend a pre-assessment clinic. Here a nurse will ask you about previous medical problems, your social circumstances, as well as checking your blood pressure, pulse and temperature. You may also require a few further tests such as blood tests and a heart trace (ECG). Very occasionally a chest X-ray is required. If there are any concerns about your health you may be asked to see an anaesthetist.

You will then be expected to attend the ward on the day of the surgery and will need to be ‘nil by mouth’ for six hours. Details of this will be provided in your confirmation letter if you do decide to go ahead with the surgery.

What happens after surgery?

After the operation, you will wake in the recovery room and a nurse will be there to assist you. An anaesthetist will be there to help manage any discomfort you may experience after the procedure. When you are fully awake, you will be moved back onto the ward.

You will be allowed to fully weight bear on the operated leg straight away but often additional support is necessary in the form of crutches or a brace. Bending and straightening of the knee is encouraged from the start to minimise stiffness and weakness. Persistent pain and swelling is not unusual up to four months after the operation.

Physiotherapy commences immediately after the operation, working on regaining range of movement and muscle strength. While the rehabilitation programme may differ depending on the individual, the general goal is to gradually increase your level of activity under the guidance of your physiotherapist. You should aim to recover flexion of your knee joint over 90 degrees by four weeks following your operation, and wean off the knee brace from four to six weeks.

It is recommended that you take three to four weeks off work, and it will be about six months before it is safe to return to sport.

Will I have to stay in hospital?

Patients normally stay in hospital for one night after the operation. This is to help manage post-operative pain and allow you to start your physiotherapy. On rare occasions, a person may need to be kept in hospital longer.

Follow-up care

As well as regular physiotherapy you will also have follow-up appointments with your surgeon. You will usually be seen in Outpatients at:

- 4-6 weeks
- 4 months
- 6-12 months

If you have any further queries or concerns after your operation then please contact the appropriate orthopaedic secretary to raise the issue on 024 7696 4000.

If you are concerned about post-operative complications please contact your consultant's secretary on the numbers below or see your GP.

Mr Thompson's secretary: 02476 965096

Mr Spalding's secretary: 02476 965098

Mr Metcalfe's secretary: 02476 964965

The Trust has access to interpreting and translation services. If you need this information in another language or format please contact one of the medical secretaries on the numbers listed above and we will do our best to meet your needs.

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