Revision Total Knee Replacement

Definition

Revision knee replacement, which is also known as revision total knee arthroplasty, is a procedure in which the surgeon removes a previously implanted artificial knee joint, or prosthesis, and replaces it with a new prosthesis. Knee revision surgery may also involve the use of bone grafts. The bone graft may be an autograft, which means that the bone is taken from another site in your own body; or an allograft, which means that the bone tissue comes from a donor. **The source of this bone graft is usually bone from someone else, removed when they had a hip replacement or donated after death.**

Purpose

Revision knee replacement has three major purposes: relieving pain in the affected knee; restoring the patient's mobility; and removing a loose or damaged prosthesis before irreversible harm is done to the joint.

Knee prostheses can come loose for a number of reasons. One is mechanical and is related to the fact that the knee joint bears a great deal of weight during daily activities. The bone tissue that receives the metal implant is softer than the bone that was removed, which means that the metal implant may sink into the softer bone and gradually loosen.

Another reason for loosening of a knee prosthesis is related to the development of inflammation in the knee joint. The plastic part of knee prosthesis is made of a material called polyethylene, which, over time can form small particles of debris as a result of wear on the prosthesis. These tiny fragments of plastic are absorbed by tissue cells around the knee joint leading to an inflammatory response. The inflammatory response begins to dissolve the bone around the prosthesis in a process known as osteolysis. As the osteolysis continues, bone loss accelerates and the prosthesis eventually comes loose.

A knee prosthesis that has become infected must be removed and replaced to prevent permanent damage to your knee.

Success Rate

The success rate of knee revision surgery is somewhat difficult to evaluate because the procedure is performed much less frequently than total knee replacement (TKR). It is estimated that 98% of knee prostheses are still functioning well 10 years after surgery, with 94% still working after 15 years. Because of this high success rate, the number of patients who have had knee revision surgery is much smaller than those who have had a total knee replacement.

Results of knee revision surgery are similar to those for TKR. Patients have less pain and greater mobility in the affected knee, but not complete restoration of the function of a normal knee. Between 5% and 20% of patients report some pain following either TKR

or revision surgery for several years after their operation. Most patients, however, have considerably less discomfort in the knee after surgery than they did before the procedure.

As with knee replacement surgery, patients who have had revision surgery may experience mild swelling of the leg for as long as three to six months after surgery. Swelling can be treated by elevating the leg and applying an ice pack.

Are there any alternatives?

If you replacement knee is infected there is no alternative to revision. If your knee is painful for another reason, your consultant will discuss all options with you.

How is it done?

Most knee revision operations take about three hours to perform and are similar to knee replacement procedures. After you have been anesthetised, the surgeon will open your knee joint and remove the old components of the knee prosthesis. After the metal parts have been removed, the damaged bone is reshaped. If the bone is weak, the surgeon may decide to add bone grafts. In some cases, metal wedges may be used to improve the attachment of the new components.

If your knee revision is being done because of an infection in your knee replacement, you will need two separate operations. In the first, the old prosthesis is taken out and a block of cement known as a spacer block is inserted in the joint. The spacer block has been treated with antibiotics to fight the infection. The incision is closed and the spacer block remains inside your knee for about six weeks. You may also be given intravenous antibiotics during this period. After the infection has cleared, the knee is reopened and the new revision prosthesis is implanted.

Complications

The complications that may follow knee revision surgery are similar to those for knee replacement. They include:

- Blood clots – surgery to the leg can sometimes cause a blood clot to form in the veins. To help prevent this you will be given injections whilst in hospital and taught how to administer these to yourself for 4 weeks after your surgery.
- Minor chest or wound infection – this sometimes occurs and you may require antibiotics and, in the case of deep wound infection, further surgery may be needed.
- Loosening of the new prosthesis. The risk of this complication is increased

considerably if you are overweight.

- Formation of heterotopic bone. Heterotopic bone is bone that develops at the lower end of the femur following knee replacement or knee revision surgery. Patients who have had an infection in the joint have an increased risk of heterotopic bone formation.

- Bone fractures during the operation. These are caused by the force or pressure that the surgeon must sometimes apply to remove the old prosthesis and the cement that may be attached to it.
- Additional or more rapid loss of bone tissue.

- Nerve damage - the nerves around your knee can be damaged at the time of surgery. If this occurs it may require further investigation

Up to 15% of patients can experience long term problems with pain following total knee replacement surgery, despite having a well functioning knee.

Please discuss these issues with the medical team if you would like further information.

Health Promotion

It is essential that you are in the best of health possible to reduce the risks from having an anaesthetic and to help with your recovery. It is very important that you prepare yourself for surgery as best you can. If you are unwell at any stage prior to surgery, call your Consultants secretary to discuss further, using the Hospital phone number.

Weight and Diet

If you are overweight you will put more strain on your new knee you are advised to lose some weight before your surgery. Excess weight can also make you more likely to have anaesthetic problems. If you are underweight or have a poor appetite, it is important to make the best of what you do eat. Dietary advice and further information can be obtained from your local GP practice.

Body Mass Index

Body Mass Index (BMI) is a measure used to evaluate body weight relative to a person's height. BMI is used to find out if a person is underweight, normal weight, overweight or obese. **If your BMI is above 35 you will need an anaesthetic assessment (above 30 if you have any other medical problems).**

Smoking

It is recommended that, if possible, you cut down on your smoking immediately. Ideally you should not smoke for a week before your operation and not all whilst in hospital.

Pre-Assessment Before your Operation

About two weeks before your operation you will be asked to attend a pre-assessment clinic, where you will undergo routine tests to assess the state of your health before

surgery and to confirm that you are healthy enough to have the operation.

You will have an ECG, which is a tracing of your heart and, if necessary, a new x-ray of your knee.

At the clinic you will be seen by a nurse who will check your blood pressure, pulse and weight. Some blood samples will be taken to ensure that all your blood levels are acceptable. You will also be asked for a specimen of urine. This is routine to make sure you do not have any water infections prior to surgery.

Fasting

You will be asked not to eat or drink anything for 6-12 hours before your operation. This will let your stomach empty to prevent you from vomiting during your operation.

Timing of the Operation

The approximate timing of your operation is arranged the day before surgery. Once the operating list order has been confirmed by the surgeon and anaesthetist, you will be informed of an estimated time of your operation. This may be subject to change at short notice.

Preparation for Going to Theatre

You will be asked to remove all contact lenses, jewellery, watches, make-up and nail varnish. Wedding rings can be covered with tape if they will not come off. (Ideally you should not bring jewellery into hospital with you). You will be asked to take a bath or shower. Antiseptic skin wash will be provided for you to wash with. The operation site will not be shaved on the ward. If it is necessary, we will shave it in the operating theatre. Dentures will have to be removed once you are called to go to theatre.

Pre-Medication

You may be given a sedative injection or tablets about 1 hour before the operation. This will relax you and may make you sleepy. Once you have had your ‘pre-med' you must stay in bed. You should call for a nurse if you need assistance.

Transfer to Theatre

A ward nurse and a theatre porter will take you on a trolley to the operating suite. You will be wearing a cotton gown. There will be several checks on your details on the way to the anaesthetic room where your anaesthetic will begin.

Having an Anaesthetic

You will be reviewed by the anaesthetist on the ward prior to being taken to theatre. The anaesthetist will discuss the anaesthetic options available to you, this will be either general anaesthetic or spinal (epidural) anaesthetic. Once the decision on which anaesthetic will most suit you, the anaesthetist will either help you to sleep with a general anaesthetic via an injection in the back of your hand, or perform the spinal (epidural) anaesthetic which will numb you from the waist down.

The operation is then performed.

What Happens After The Operation?

After the operation, you are taken on a bed to the recovery ward for about half an hour. Once you are fully recovered, you will be transferred back to the ward on a bed.

Coming Round after the Anaesthetic

Although you will be conscious a minute or two after the operation ends, you are unlikely to remember anything until you are back in your bed on the ward.
You may wake up with an oxygen mask on your face. This is to help you come round from the anaesthetic.
You will have a plastic tube in your arm to give you a drip, which will ensure you remain well hydrated.
You may have a fine plastic drainage tube coming out of the skin near the wound, connected to a container which will measure blood loss after the operation.

Warning after a General Anaesthetic

The drugs that we give for a general anaesthetic will make you clumsy, slow and forgetful for about 24 hours. This happens even if you feel quite all right.

For 24 hours after your general anaesthetic: **Do not make any important decisions.**

Will It Hurt?

The wound may be painful. You will be given injections or tablets to control this. Ask for more if the pain is unpleasant.

Drinking and Eating

You should be able to drink within an hour or two of the operation provided you are not feeling sick. The next day you will be able to manage normal food, and you must focus on drinking plenty of fluids to ensure you remain hydrated.

Passing Urine

It is important that you pass urine and empty your bladder within 6-12 hours of the operation. You will need to use a bottle or a bedpan with help from the nurses at first.

If you still cannot pass urine let the nurses know and steps will be taken to correct the problem. If necessary you may require a catheter.

Opening Bowels

It is quite normal for the bowels not to open for a day or so after an operation. You may need help with a bedpan at first. Later you will be able to walk to the toilet, but you may still need help.

If you have not opened your bowels after 2 days and you feel uncomfortable, ask the nurses for a laxative.

Sleeping

You will be offered painkillers rather than Sleeping pills to help you to sleep. If you cannot sleep despite the painkillers please let the nurses know.

Physiotherapy

Whilst in bed, you should help your circulation by continuously moving your ankles and legs.
You will be helped out of bed, usually on the day after your operation. By the time you go home you will usually be walking with the help of two crutches. If you have stairs at home, you will be taught how to climb and descend stairs before you are discharged. You will be informed of the amount of weight to put on the affected leg after the operation .

The Wound and Stitches

The wound will have a simple adhesive dressing over it.
The nurses will remove your wound drain one day after your operation by pulling it out. Your wound will be closed by either a continuous stitch under the skin or clips (similar to staples). The continuous stitch is dissolvable and will not need to be removed, or staples will be removed at 14 days post op. These will be removed by either your practice nurse or the district nurses. Removal of stitches and wound monitoring will be organised prior to your discharge from hospital.

Washing

Wash around the dressing for the first ten days. You can wash the wound area as soon as the dressing has been removed. Soap and warm tap water are entirely adequate. Salted water is not necessary. You can shower as often as you like.

What about Informing my Relatives and Contacts?

With your permission, the nurses will keep your relatives and contacts up to date with your progress. However, please help minimise the number of phone calls to the ward. Organise a few key people who can ring and distribute news of your progress.

How Long In Hospital?

Depending on your recovery you will usually be in hospital for about 5-7 days following your operation. Occasionally this may be longer. You may go home when you can walk safely with crutches or sticks.

You will be given an appointment to visit your consultant in the Orthopaedic Outpatient Department six weeks after your operation. The physiotherapist will make arrangements for you to attend the physiotherapy department as an out-patient.

Clothes
Please bring in loose fitting clothes to wear on the ward. This is because they are easier to get on and off.

Transport
When you are fit for discharge from hospital, you can go home in a car. You will be taught how to get in and out of a car in a safe manner.

Sick Notes
Please ask the nurses if you require sick notes, certificates etc.

Driving
You must not drive for at least six weeks after you leave hospital. You will not be able to carry out a full emergency stop procedure during this post op period. The majority of insurance companies will not insure drivers during this post op phase - it is advisable to confirm with your insurance company. You should confirm your ability to return to driving at your six week post-op out-patient check up.

Work
This depends on your job. If you have a job which is not particularly physical you may be able to return to work at approximately 8 weeks post op, most people will return to work at the 12 week post op stage.

General Recovery
Your knee will continue to improve over a six to twelve month period.

General Advice
Total knee replacement surgery is a major undertaking. However, we believe that you will be much better off with a new knee joint.

If you have any problems or queries, please ask the nurses or doctors.

Coping With Your Pain
You may be afraid to exercise because of the pain you have. Some people find having a warm bath or shower before they practice their exercises helps to lessen some of the pain, as the warmth of the water is very relaxing. Swimming itself is an excellent form of exercise, as you will be able to move and strengthen your joints and benefit your heart and lungs, whilst the warmth of the water helps to relieve your pain.

Special note – It is advisable to consult a doctor, nurse or physiotherapist before attempting any new form of exercise.