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Unicompartmental Knee Replacement (UKR)

Patient information

Introduction

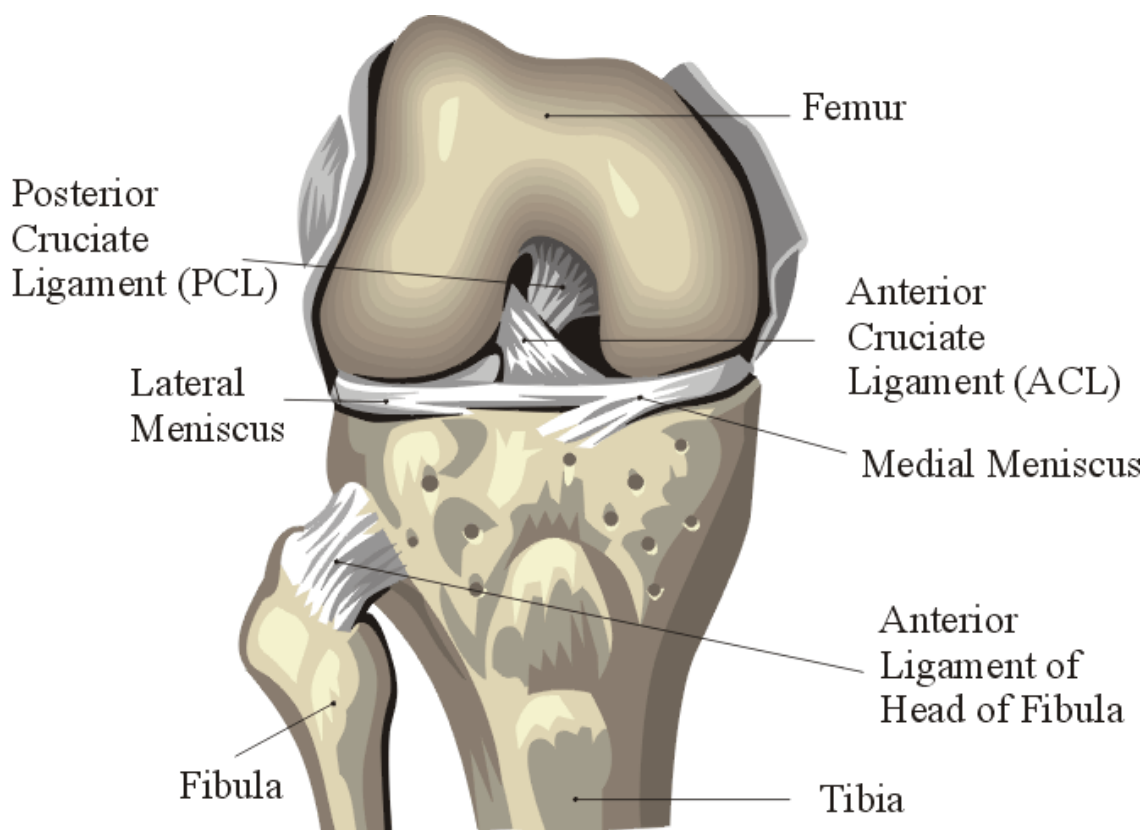
This leaflet will hopefully give you a better understanding of unicompartmental knee replacement. Specifically it includes the reasons for having the operation, the benefits of unicompartmental replacement, the potential risks involved and what to expect after the procedure.

The normal knee

The knee joint is the largest and one of the more complex in the body. It is a major weight bearing joint which allows bending (flexion), straightening (extension) and rotational movements.

The joint is formed by the lower end of the thigh bone (the femur) and the upper surface of the shin bone (the tibia). A smooth substance - articular cartilage - normally covers the surface of these bones. (Osteo)arthritis is the result of this cartilage thinning and eventually exposing the underlying bone. The roughening and disturbance of the joint surface often causes pain and limitation of movement (stiffness). Either the medial (inner) or lateral (outer) compartment may be affected but it is usually the medial side.

The normal knee joint is made stable by the collateral (outer) and cruciate (inner) ligaments. The joint is enclosed by a tough capsule lined by a synovial membrane which produces a lubricating fluid which reduces friction to nearly zero in a healthy knee.



Unicompartmental Knee Replacement (UKR)

The knee joint has three 'compartments' – medial (inside), lateral (outside) and patello-femoral (kneecap) – and each can be affected by arthritis. Patients who have significant arthritis in two or more compartments and who need surgery will usually require total knee replacement. However patients who have arthritis predominantly in one compartment of the knee may be candidates for a unicompartmental knee replacement. The operation is primarily recommended for pain relief but in doing so often corrects mild deformity and restores good mobility and function.



Right knee x-ray with 'bone on bone' arthritis of the inner (medial) compartment

Who should have a unicompartmental knee replacement?

This operation produces excellent results in patients who:

- Have significant (bone on bone) joint damage limited to one knee compartment
- Have stable cruciate and collateral ligaments
- Do not have too much deformity and/or stiffness in the knee joint

Advantages of a unicompartmental knee replacement (v Total Knee Replacement)

- Shorter hospital stay and convalescence
- Smaller incision and better range of movement
- Maintains all knee ligaments including the anterior cruciate ligament:
 - A more normal gait and walking speed
 - Better 'patient reported outcomes' (function)
- Lower risk of postoperative complications (infection, thrombosis, heart attack, stroke)
(All are at least 2x lower than for Total Knee Replacement)

Potential disadvantages of UKR

- Over time osteoarthritis may develop in the non-operated part of the knee which may require a revision operation / conversion to a total knee replacement (TKR)
- There is a significantly higher (x3) rate of revision surgery - usually to TKR - when compared to 'failure' of total knee replacement. This especially affects the younger (under 55 years) age group.

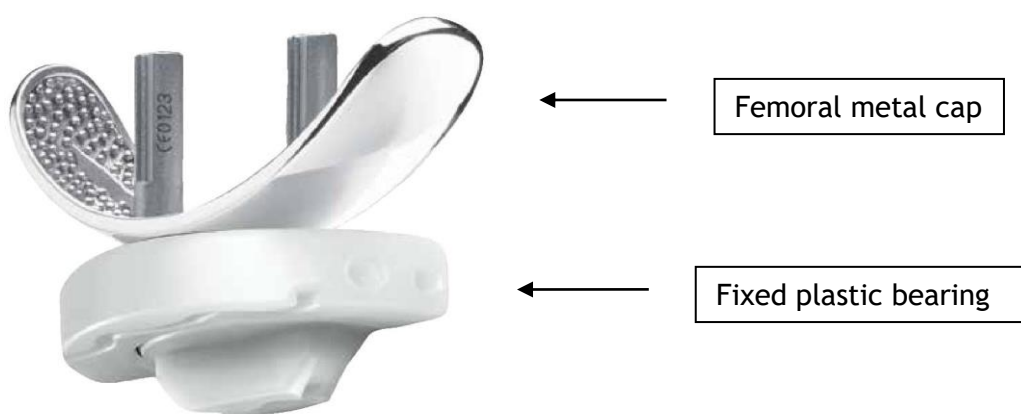
The components I use

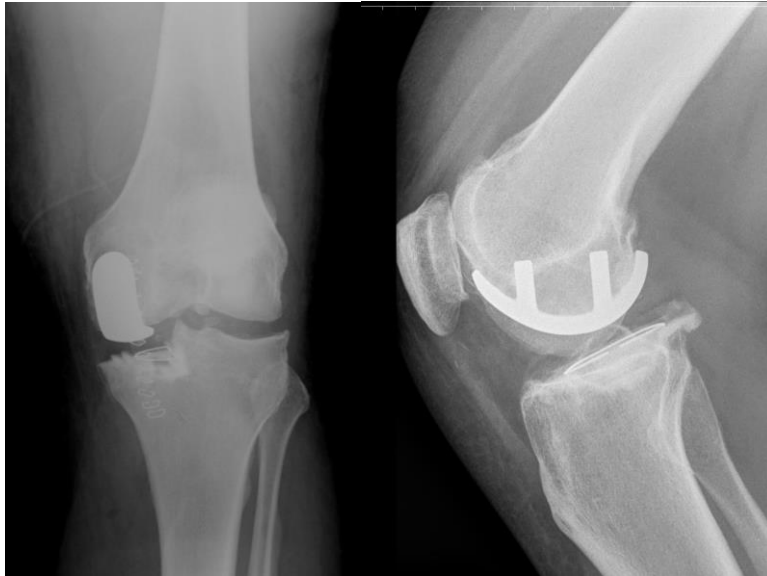
A unicompartamental knee replacement will resurface the lower end of your thigh bone and the upper end of the shin bone with metal and plastic components. These are secured using special cement (methylmethacrylate).

There are two main types of unicompartamental knee replacement. The first has the plastic and metal components fixed directly to the bone by cement (fixed bearing) e.g. LINK St Georg. The second consists of fixed metal components with a mobile plastic 'bearing' in between (e.g. BIOMET Oxford). The long-term outcomes of uncemented total knee replacement is inferior to cemented components and the results for uncemented unicompartamental knee replacement outside of the commercially backed designer centres is unproven. The fixed bearing devices e.g. LINK St Georg can be used for resurfacing both medial and lateral compartments.

The St Georg sled unicompartamental knee replacement

The design of this partial knee replacement has been UNCHANGED since its introduction in 1981. There is no other replacement which can compete in this regard. The femoral component is made of curved cobalt chrome and is available in a variety of sizes to fit each individual. The tibial component is either a plastic tray fixed to a metal base or a solid plastic tray (my preference). Both components are permanently attached to both the femur and tibia.





Front view

Side view

Left knee with a medial St Georg unicompartmental replacement

Risks and potential complications of UKR

- **Post-operative bleeding / bruising**

Due to the nature of the operation some bruising of the lower leg is inevitable. A suction drain is not used to reduce the risk of infection.

- **Pain**

Some discomfort is to be expected following every type of surgery. You will be given medication to control the pain post operatively and on discharge.

- **Altered wound healing / sensation**

Most heal very well but some wounds may become red, thickened and painful (keloid) – more common in the Afro-Caribbean race. Damage to the small skin nerves will result in some temporary or permanent alteration of sensation to a small area of skin on the front of the knee.

- **Infection in the surgical wound**

You will be given a large dose of antibiotics just before your surgery and the procedure is performed in a clean environment (laminar flow theatre). Despite this infections occasionally occur. The wound may become red, hot and painful. This usually settles with antibiotics but may require an operation to wash out the joint if there are concerns that the metalwork is involved (deep infection). Very occasionally the metalwork may need to be removed and replaced at a later stage.

Approx. 1-5 in 100 patients

- **Blood clots (Deep Vein Thrombosis / Pulmonary Embolism)**

Following all major lower limb surgery there is a risk of forming a blood clot in the calf (DVT) which can occasionally move through the blood stream to the lungs (pulmonary embolus).

You will be treated during the operation and immediately afterwards with mechanical 'pumps' on the foot or calf which help to move the blood through the deeper calf veins. In addition you will receive blood thinning medication for 10 days post operatively. Early movements and mobilisation are also encouraged.

- **Knee stiffness**

Stiffness may be a problem especially if the movements were significantly restricted pre operatively. Manipulation (under anaesthetic) may be necessary to improve this.

- **Difficulty passing urine (males especially)**

If this persists you may be given a catheter until you are more mobile.

Approx. 1-5 in 1000 patients

- **Damage to the major nerves around the knee**

Very rarely the larger nerves around the knee can be involved resulting in temporary or permanent weakness and/or altered sensation.

- **Damage to the blood vessels behind the knee**

This can lead to loss of circulation to the leg and foot. If this happens you will need immediate surgery to restore the blood flow and could result in amputation.

The operation

This is usually performed under general anaesthesia but on occasion it may be with a local block e.g. spinal anaesthetic. It requires a tight inflatable band (tourniquet) to be applied to the leg to limit bleeding. You will wake with a wool / crepe bandage dressing on the knee.

After your operation

You will be encouraged to stand up later the same day / following day, depending on your pain and recovery from the anaesthetic. You will be able to take weight through the knee when standing and your physiotherapist will help you with this. Due to the discomfort around the knee you will not initially feel strong or have complete control of the muscles and crutches are required for a short period.

Your physiotherapist will show you some general bed exercises and you should try to do these exercises hourly. Typically you will be in hospital for 2 days.

When you leave hospital

If you live alone it is advisable to make arrangements to have someone with you for the first few nights until you are confident to be alone. The pre-admission nurse and physiotherapist will discuss this with you at your pre-admission appointment. Once home, you must continue to exercise as you have been instructed.

Wound

Following your operation you will have an incision over the front of your knee. This will be closed with stitches or clips. These will need to be removed 12 days after your operation. This can be done at your local surgery and the nursing staff will organise this for you before you are discharged. You will be able to shower whilst the stitches or clips are still in situ.

Pain relief

Pain after your operation can be kept to acceptable levels by a variety of medications and techniques. Your anaesthetist will have chosen the most suitable pain relief medication for your needs and will have prescribed these. Your pain level may be acceptable while resting, but may increase when you move, e.g. for physiotherapy so it may be advisable to ask for a "top-up" 10 to 15 minutes before treatment. Ice packs placed on the knee are also beneficial for pain relief and swelling. Your physiotherapist or nurse can help you with this.

Eating and drinking

Following your operation you may feel nauseous, a common symptom following surgery and a common side effect of pain-relieving drugs. Once you are able to tolerate fluids you will be started on a light diet, increasing to a full diet within 48 hours. If nausea is a continuing problem, there is medication available which can minimise it in most circumstances.

Swelling

It is normal to expect swelling and bruising of your knee and leg/foot following this surgery. This can take several weeks or more to resolve. **If you notice a sudden increase in the swelling with pain and redness of the skin please contact the hospital or your G.P.**

Driving

Driving is usually allowed after six weeks depending on which leg has been operated on and your consultant's advice. You should contact your insurance company and inform them of your operation and check if you are insured to drive.

Sexual intercourse

Following your operation sexual intercourse can be resumed when comfortable, provided there is no significant pain or advice to the contrary from your consultant. Initially women might find it more comfortable to lie on their operated side with the un-operated leg bent and men may find it more comfortable to lie on their backs with their partner kneeling astride them.

Follow up

Your consultant will normally review your progress six weeks after you return home, but should you have any queries, please contact your consultant or the ward.

Long term care

Health and general fitness are important. We would advise that you try to keep your weight down, thereby reducing the stress on the knee joint.

The risk of infection after your knee replacement is very low. However as a precaution:

- Notify your G.P. if you get any kind of infection, so that you can receive antibiotics as soon as possible.
- Inform your dentist of your joint replacement. As a precaution he/she may prescribe antibiotics, particularly for tooth abscesses.

Physiotherapy after your operation

Physiotherapy is an essential part of the recovery process, both to reduce the risk of post-operative complications and to ensure that you attain the best functional result. You must be committed to this in the weeks (and months) following the procedure if you want to do well.

Soon after your operation the physiotherapist will advise on some exercises to do whilst you are in bed to help reduce the likelihood of thrombosis. On the first post-operative day you will be helped to get out of bed and to start mobilising, initially with a walking frame. You will rapidly progress to using crutches and be shown how to negotiate stairs. A booklet of recommended exercises will be provided for you to follow whilst at home.

When you are safe on crutches and the physiotherapist and surgeon are happy you can go home.