

KNEE ARTHROSCOPY

INFORMATION AND PROTOCOLS

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INTRODUCTION

Arthroscopy has become vastly popular as a means of examining and treating conditions affecting the joints. Most arthroscopic procedures are carried out upon the knee joint, which because of its complexity and design is the most commonly injured large joint in the body.

Over two million arthroscopies are carried out per year in the United States. The procedure is safe and reliable in expert hands and represents what most people would know as minimal access surgery or keyhole surgery.

The advantages to the patient include extremely small incisions and ease of mobilisation after the procedure. This renders most arthroscopic procedures day case activities with rapid return to full function and work status.

PROCEDURES

A vast number of operative procedures are possible during arthroscopy in addition to inspection of all the joint surfaces and the two menisci in the joint. Powered arthroscopic instruments and micro tools are available in specialized knee units which allow complex procedures to be carried out down the arthroscope.

The majority of the operations down the arthroscope are performed on the meniscal cartilages within the joint. Additionally surgery to the anterior cruciate ligament which is situated in the central part of the knee joint and repair or smoothing down of articular cartilage (which lines the surfaces of the knee) is also possible as well as complimenting microfracture and cartilage repair techniques.

Meniscal Surgery

The menisci (cartilages) are the structures on which most of the work is carried out upon in arthroscopy. Due to the design of the knee, the menisci are crucial to its function both in bending and flexing and in twisting or pivoting. The menisci act as a washer or shock absorber within the joint allowing smooth movement of the femur upon the tibia. The

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menisci also aids distribution of the lubricant fluid within the knee and thus aid the articulation of the joint and the friction free movement of the bones.

The menisci may be injured by sudden trauma such as a sporting accident or a twisting injury or alternatively the menisci may tear as a result of minor repetitive injury associated with active movement or prolonged sporting activity. Once the menisci are torn, the damaged edge of the meniscus becomes obstructed to the normal movement of the joint and pain results, particularly worsened by deep knee bends or twisting movements. As well as pain, some long term damage can occur as a result of the torn cartilage damaging the bearing surface of the joint.

Meniscal surgery to a damaged articular cartilage is directed at removing the area which is torn, whilst leaving the vast majority of undamaged meniscus intact. Previous studies have shown that removal of the entire meniscus results almost certainly in osteoarthritic degeneration of the knee as the lubricant and washer facilities of the cartilage are removed and the bone of the femur begins to grate on the bone on that of the tibia.

Every effort is therefore made to leave as much good meniscal tissue as possible should the meniscal tear occupy less than 30% of the surface area, there are few long term symptoms as the remaining 70% of the meniscus will cope adequately with the weight-bearing duties of the knee.

Meniscal damage that involves more than 30% of the surface area of the structure will be repaired to maintain its washout and lubricant function. Fortunately the majority of meniscal tears that do occur are less than the critical 30%.

Articular Cartilage Surgery

Articular cartilage forms a vital function within the knee joint, coating the bearing surfaces of the femur, the tibia and the under surface of the patella or knee cap. The special qualities of this articular cartilage lining of the joint allows the bones to move together with a minimum of friction and wear. It has been observed that the friction between the femur and tibia is actually less than that of two smooth blocks of ice sliding on each other.

However the smooth lining of the joint may be damaged by injury leading to painful symptoms as parts of the underlining bone are exposed, giving rise to grating and crunching symptoms along with pain and aching. Once damaged, articular cartilage does not regenerate and there is the possibility that damage to the articular cartilage can extend.

Arthroscopic surgery is aimed at containing and smoothing these areas and promoting the growth of repair tissue. This repair tissue is basically scar tissue but in many cases can alleviate some of the discomfort and prevent further damage to existing articular tissue. Other specialist techniques such as microfracture and cartilage grafting may be necessary to restore some of the function of the joint.

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ASSESSMENT AND DIAGNOSIS

Arthroscopic surgery may also be used to assess the internal structures of the knee in particular the anterior cruciate ligament which is commonly damaged in pivoting and twisting injuries that occur often in sport. The arthroscope may also be used to examine the undersurface of the patella or knee cap, delineating the movement of the patella upon the femur examining the under surface of the knee cap itself or damage or roughness. During such a procedure it is often possible to use powered arthroscopic instruments to smooth down or debride the under surface of the patella enabling the joint to run a little more smoothly and reducing some symptoms of knee cap pain.

THE OPERATION

Most arthroscopic examinations are carried out as a day case. Prior to surgery you will be seen by myself to once again verify the symptoms and at this point, please feel free to ask any questions that may have occurred since our out-patient meeting. You will also be seen by the anaesthetist who is to perform the anaesthetic during your surgery.

Normally two 3 mm. Incisions are made on the front of the knee to allow the entrance of the arthroscope on one aspect and one to allow the entrance of micro instruments or powered tools. If technical aspects do not preclude the performance of arthroscopic surgery, the view down the arthroscope as seen by myself, is recorded on a video tape for your better understanding and record of the procedure.

RECOVERY

Operation Day

Following the operation, I will visit you to explain the procedure and what has been carried out at operation. Once you have fully recovered from the operative procedure and the anaesthetic it will be possible for you to return home after being seen by the physiotherapist and having some advice as regards immediate rehabilitation.

On recovering you will notice that the knee is dressed in a supportive bandage. The dressing consists of some sticky tapes (steristrips) to close the small incisions through which the instruments have been placed. I do not routinely employ sutures. Over these steristrips a white adhesive dressing is laid and subsequently a soft woolly supportive bandage wound round the knee. A further supportive crepe bandage will be added to complete the dressing.

Commonly, this dressing is left in place for your discharge from hospital to provide some support for the joint in the post surgical phase. The nursing staff will instruct you in the removal of the dressing on the morning after surgery and will supply a tubigrip support to be worn in the few days after operation.

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Day 1

On the first post-operative day it is necessary to reduce the supportive bandage if it is still present and replace this with a tubigrip bandage which you will be given on discharge. The supportive bandage may be removed by simply unwinding successive layers of the dressing as detailed above. The steristrips and the white adhesive dressing should be left on the skin and if the wound is kept dry, this will promote good and secure healing. Should the adhesive light dressing become displaced during the first few days after surgery it may be replaced by the use of simple *elastoplast* type plasters to cover the wound and keep the wound dry. The tubigrip bandage should be placed over the knee to provide support and reduce swelling. This bandage may be worn during the day but should be removed at night.

Should any bleeding have occurred from the arthroscopy wounds, the skin may be gently sponged clean, but the arthroscopy wounds should not be disturbed. During the first ten days, the arthroscopy wounds should be kept completely dry. During bathing, the knee should be kept clear of moisture.

Following with procedure, you will be visited by the physiotherapist who will advise you concerning knee movement following surgery. It is not advisable to undertake strenuous exercises particularly in the first week following operation and I advise that whilst patients may walk normally and drive after the day following arthroscopy, I do not advise strenuous exercises other than gentle mobilisations as instructed by the physiotherapists. The tubigrip supplied following discharge should be worn during the day but removed at night.

Days 2-14

During this period, it will become progressively more easy to walk and move the knee. Major knee surgery is possible using the arthroscope, therefore the knee will be uncomfortable or painful in the first few days following the procedure. Whilst the knee is uncomfortable, it is important not to over-exercise, which will make pain and stiffness worse. No specific exercises are required other than gentle walking over a limited distance. An appointment will be made for a review by the physiotherapist a week following surgery to ensure satisfactory progress. Whilst the knee is still painful, you may wish to continue the use of a crutch or a stick; as the pain settles, the knee can be more active, although avoid long walks and over-activity.

During this period, one should not indulge in sporting activities. Whilst the knee is uncomfortable, it may also swell and this is an indication that activity should be further limited.

Driving is permitted three days post surgery if all pain has settled and normal walking without a stick or crutch is possible.

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HELP AND ADVICE

Should you have any queries regarding arthroscopy surgery or be concerned as regards pain or swelling in the post operative period following discharge, please feel free to contact the personnel on any of the numbers listed below:

Day Care Unit 02380 775544 Ext. 350

Physiotherapy Department 02380 775544 Ext. 348

**Bernice Allison,
Professor Barrett's PA** 02380 776877