Knee Arthroscopy and Arthritis

How is the surgery done?

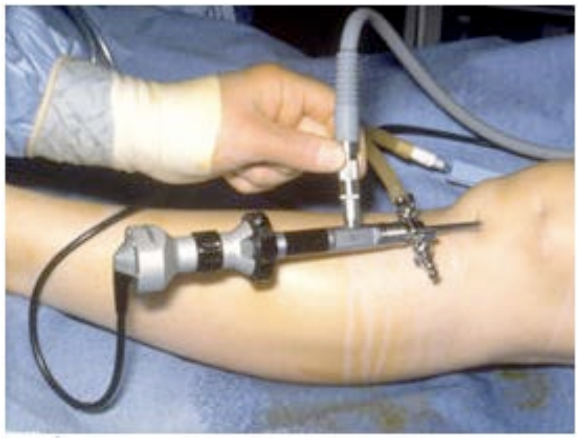

Figure 1: Knee Arthroscopy Surgery

It is undertaken in an operating theatre under anaesthesia. By moving the position of the leg, different parts of the knee can be examined, allowing accurate diagnosis of the problem.

A second incision or "portal" is made to allow a variety of tools to be introduced into the knee. Problems identified can be rectified arthroscopically at the same time.

What is osteoarthritis?

Osteoarthritis is wear and tear, and degeneration of the joint surfaces. Arthroscopy alone cannot reverse this. Arthroscopy can smooth off rough patches, remove torn fragments of cartilage that are flicking in and out of the knee. This may sometimes be helpful in reducing night pain and mechanical symptoms.

Does arthroscopy always help?

In the presence of arthritis, the value of arthroscopy is reduced. A small number of patients are worse off. Good results can occur if there is a torn cartilage without arthritis nearby, or arthritis on the outer side of the kneecap that can be relieved by a lateral release.

What anaesthetic?

The majority of knee arthroscopies in Ballarat are performed under general anaesthesia. It is possible to do the surgery either with a spinal anaesthetic or even local anaesthesia, although these are less commonly performed.

Loose bodies

Some patient's develop loose bodies in the knee joint. The most common source is from an area of damaged joint surface that breaks off and floats. The loose body can intermittently jam the knee, or cause the knee to "lock". The pain of this can be dramatic.

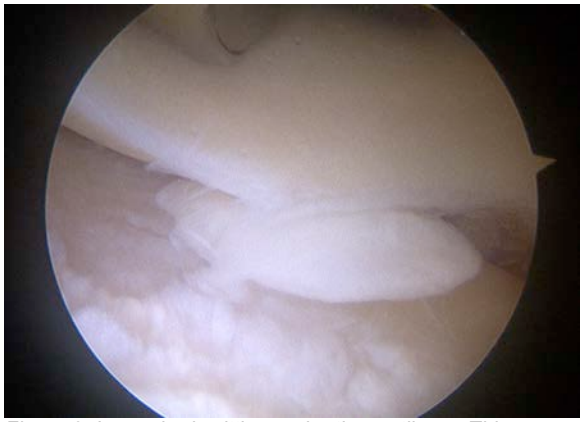

Figure 2: Loose body sitting under the cartilage. This can cause pain, or intermittent locking of the knee

Fixing torn cartilage

The cartilage partly sits between the femur and tibia, functioning as a shock absorber. In older people, relatively minor injuries (eg getting up from squatting) can be enough to tear the cartilage. Cartilage generally does not heal. It can cause pain, swelling, and even locking of the knee. Removing the torn cartilage prevents the torn part jamming or being in an uncomfortable position. Some people worry removing the cartilage will speed up the arthritis. In principle the cartilage is no longer functioning. The surgeon will minimise the amount of cartilage removed.

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Damaged joint surfaces

The ends of bones have a surface similar to soft enamel. It can be damaged from injury, some childhood conditions, and also “wear and tear” of early arthritis. In older patients with a torn cartilage, there is often also some damage to the joint surface. The loose fragments are removed, and the rough areas smoothed off. Sometimes the damaged joint surfaces need additional attention. Small areas may be improved with “micro-fracturing” (drilling small holes into the underlying bone) at the time of surgery.

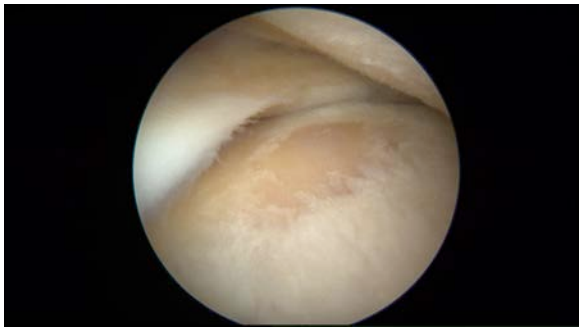

Figure 3. Full thickness wear with exposed bone (darker yellow colour). Arthroscopy is unlikely to help this knee.

Kneecap issues

Sometimes damaged joint surfaces require smoothing off. If the outer side of the kneecap is pressing too hard against the femur, it can cause arthritis in a small patch. Performing a surgical “lateral release” can relieve this pressure. Members of the American Knee Society have been unimpressed with fully arthroscopic lateral releases – we may use a separate short incision on the outer side of the knee instead. This minimizes bleeding and speed up recovery. Crutches are probably necessary for three days, but the recovery seems more reliable than the fully arthroscopic procedure.

Acute injuries of the knee

If the knee swells rapidly within an hour of an injury, it is usually a sign of bleeding into the knee. Removing the tense blood in the knee helps speed the recovery process. The underlying problem can also addressed, such as removing the torn cartilage. There are some older people who will benefit from a cruciate reconstruction, but this is relatively rare in the presence of arthritis and not routinely done as an initial procedure.

Denervation Procedures

There is sometimes a place for detaching the small nerves from otherwise painful areas of the knee joint. My experience with this has been predominately on the patella.

Should I have an MRI first?

There are those who may be unlikely to benefit from arthroscopy because the symptoms are predominantly of aching without mechanical symptoms, or without joint line tenderness. In this instance an MRI might be undertaken. MRI in these circumstances might demonstrate no arthroscopically correctible problems.
MRI is a useful tool, but is not as accurate as arthroscopy. It doesn’t identify which patients will benefit from smoothing cartilage damage or having a lateral release, and MRI can miss some torn cartilages. Thus, in some patients, it makes better sense to just get on with the surgery.

Can I watch?

It is possible to watch the television screen if under a spinal anaesthetic. The anaesthetist may have to weigh up your desire to watch with anaesthetic considerations. Discuss this with your anaesthetist.

Is it always done as day surgery?

Most standard arthroscopic surgery is done as day surgery. Occasionally for either medical or social reasons you may be admitted overnight. You may

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need to check your entitlements with your health insurance provider.

Things to bring on surgery day

- Arrange a driver to take you home
- A magazine/book to read whilst waiting
- Do you know when to fast from?
- (You cannot eat for at least 6 hours prior to surgery)
- a medical certificate required? Telling the surgeon prior to the operation will ensure the correct certificate type (eg Work-Cover, TAC, Carers Certificate).

What happens after the surgery?

Typically within an hour or two after the surgery the anaesthetic will have worn off and you will be able to go home. You will not be able to drive yourself home. An instruction sheet and summary of the surgery will be provided.

Tablets

You will probably need some painkillers when the local anaesthetic wears off – e.g. Panadeine forte. Anti-inflammatory tablets are usually prescribed if there is evidence of damage or osteoarthritis.

Bandaging

The knee will have a bandage on it. This can be removed the following day. An elastic knee brace, or tubigrip may help control any swelling.

Wound dressings

Under the bandage are small plastic dressings. These usually stay on until your surgeon sees you. They are waterproof – after showering "pat" dry the dressings.

Physiotherapy

Physiotherapy is required for lateral release (within 3-4 days of surgery). If you were using a physiotherapist prior to surgery, it would be worthwhile making an appointment for 2-5 days after the surgery.

Next appointment with your surgeon

A review appointment with your surgeon is made for typically 10-12 days after the surgery for you to remove sutures and discuss the findings.

First Six Weeks

The small incisions (portals) will heal by the one-week mark. They then swell like a pea under the skin because 4-5 separate layers each develop their own patch of thick scar tissue.

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What are the risks of arthroscopy?

Failure to fix the problem
In the presence of arthritis this risk can be as high as 50%. If symptoms persist, an MRI or other tests may be used to help identify the problem.

Tenderness and swelling
Tenderness around the scars is common, and can make kneeling difficult for up to six weeks (although usually it is less than this). The portals get an area of swelling like a pea under the skin maximal at six weeks.

Numbness
A small numb area over the front of the knee can occur. This area usually becomes smaller with time. Large areas of numbness are rare.

Haemarthroses
Bleeding into the knee after surgery occurs in 1% of patients. It slows down recovery, requires crutches and creates an annoyance for you. Occasionally the swelling is dramatic enough to require re-operation.

Infection
Infection after knee arthroscopy is said to occur in one in 600 patients. It would make you unwell, and would require readmission to hospital. Further surgery, possibly even open surgery, would be required.

Pain
Minor pain requiring tablets is common in the first few days. Unusual pain may indicate a problem. In the first instances, take the prescribed tablets and use an ice pack. If it is not settling, contact your surgeon. An uncommon occurrence is “complex regional pain syndrome” which can be debilitating.

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Other rare complications
There is no absolute limit to complications of surgery and anaesthesia. Please discuss with your surgeon.

Checklist prior to surgery
- Have you advised your surgeon of significant medical history? –
- Tell your surgeon about blood thinners such as Warfarin, Iscover, Plavix, Aspirin
- Tell your surgeon about unusual pain responses in the past – eg Fibromyalgia
- Tell your surgeon about previous operations or injuries to the knee
- Tell your surgeon about any allergies
- Hospital paperwork submitted?
- Do you have any infections in your body? If one develops prior to surgery, please telephone your surgeon

Urgent problems
Please telephone either the consulting rooms during business hours on **5332 2969**, or your surgeon’s mobile phone number out of hours. The emergency department at St John of God can be contacted on **5320 2126**. Most issues can be sorted out by a phone call. However, (rarely) it may necessary to attend the emergency department.

Other treatments for osteoarthritis of the knee

Weight loss
A significant number of Australians are overweight. You can discuss your weight with your general practitioner. Adults should have a body mass index (BMI) of 20 to 25. Being overweight overloads your joints. The knee for example carries 9 times your body weight when climbing stairs. Many patients blame their weight on their arthritic joint, but then don't loose weight after the joint is fixed. Your weight reflects how much you eat and exercise. Weight reduction improves your general well being as well as reducing joint pain.

Impact reduction
Different sporting pursuits alter how much the joints are loaded. Sports like tennis place high impacts and twisting motions on your joints. Swimming and cycling on the other hand generally reduce arthritic pains. Walking can make arthritic pains worse if you have poor quality shoe wear.

Muscle strengthening
Strength is improved with activities such as walking, swimming and cycling. Some people should consider gymnasium training. Some patients have experienced enough improvements using an exercise bike surgery that they have not required surgery.

Improve suppleness
Our western society causes us to reduce joint movement - sitting on chairs rather than the floor decreases movement of the joints. Stiff joints hurt, and the natural response is to avoid activities pushing the joints. The opposite approach is better. Stretching exercises, including yoga and tai chi, may be beneficial for some people.

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Physiotherapy
A physiotherapist is likely to be of help with strength and suppleness exercises. These are useful at any stage of arthritis. They also have a specific value prior to, and immediately after, surgery as a constant source of information and coaching.

Activity modification
Is your body trying to tell you something? Running on hard surfaces wearing inappropriate shoes is crazy. Activity modification, including changing sports, reassessing size/type of home, installing handrails and using public transport may be useful. Disabled parking permits can be arranged through your general practitioner and local council.

Glucosamine tablets
50% of patients report these are useful. If they work for you, happily continue to use, as it is a safe alternative. But, if the cost exceeds the benefit, move on.

Paracetamol
Panadol ® and Panamax ® are quite safe in normal doses and do not cause stomach irritation. Some patients and doctors feel it is just as useful as NSAIDs without the side effects. It makes good sense to try this first! It can be used on an intermittent basis such as when pain is present, or even prior to predicted painful activities.

Anti-inflammatory tablets
There are hundreds of different anti-inflammatory tablets. Nurofen can be bought "over the counter" at a pharmacy without a prescription. Prescriptions from your GP could be for Voltaren or Naprosyn. More modern anti-inflammatories are felt to reduce the stomach ulceration side effects - Celebrex is an example of these. These

tablets can be used either before or after activity, or on a regular basis. This class of tablets has been associated with an increase risk of heart attacks and strokes, but the serious risks of these tablets is possibly lower than the risk of surgery for some people. It is usually advised the tablets are taken with you meal.

Walking stick

A walking stick is extremely useful to reduce arthritic pains. They are particularly useful for activity related pain.

Cortisone injections

Cortisone is a naturally occurring substance that reduces inflammation. It can be injected into the knee joint quite easily in the consulting rooms. It is very useful to control an acute flare up of arthritic pain. Surgeons typically limit how many injections are given to an area to minimize the risk of joint deterioration, and infection either in native joints or after a subsequent joint replacement.

Synvisc Injections

Joints have a natural lubricating fluid (synovial fluid) that contains “hyaluronic acid”. In some circumstances, injecting the knee with a commercial version of this can provide relief. In joints that are very swollen, it is less obvious that it will help, although the manufacturers suggest removing the existing fluid, then injecting the Synvisc. Eighty percent of patients claim a benefit for 6 months or more. Synvisc may be beneficial in patients with early osteoarthritis. The Synvisc is not funded by the PBS, so costs the patients approx $475 + 3 appointments & injection fees. The $475 cannot be claimed from Medicare or private health insurance providers.

Raised chairs / toilet seats / bed

Difficulty getting out of a low chair is a characteristic problem with knee arthritis. The problem can be improved by using a higher chair. Higher chairs with armrests are best –medical supplies companies hire them. Raised toilet seats with armrests (to go over an existing toilet) are often used for 6 weeks after hip replacement surgery, but could also benefit patients with a bad knee. A rail can be installed next to the toilet to help with getting up and down. Your bed height can be similarly modified – you may recall beds of a couple of generations ago were substantially higher than now.

Re-alignment: Shoe wedge

Some patients with knee arthritis have a mal-aligned leg (fig 4). This could be just the way you are in both legs, or could occur after a torn cartilage has been removed. This deformity can be exacerbated by an orthotic with a large arch support. Discarding the orthotic may help, or having a wedge put under the outside of the heel. A cobbler, an Orthotist, or physio can build up the lateral heel by 5mm.

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Re-alignment: Knee brace

A standard elastic knee brace, from a chemist shop or sports store, can help control swelling and give some additional comfort. The ultimate brace is the “Unloader 1 brace”, which has a hinge and a strap that holds the arthritic surfaces apart somewhat. It is useful if the arthritis is in a single area, in people with activity related pain, and costs around $1000.

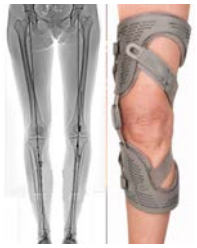

Figure 4. Left leg (right side of left image) bow improved by brace.

Re-alignment: Osteotomy Surgery

If the arthritic area is located only in one part of the knee, the leg can be realigned. Typically this is the preferred option in people under 50. The patient in figure 5 was 38years old, in figure 6 the deformity has been corrected. Some deformities are corrected by re-aligning the femur, or rarely the patella.

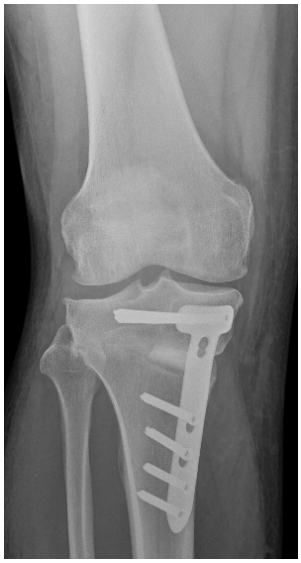

Figure 5. Three months after re-alignment tibial osteotomy.

Chondrocyte grafting & Microfracturing

In patients under 55 years of age, this technique aims to restore the damaged joint surface to normal. They may be use alone, or in combination with re-alignment osteotomies. Chondrocyte grafting involves molecular biology techniques, and a good number of cases have been done in Ballarat often in association with correcting malalignment. In 2012 Medicare withdrew support for the technique, and the main tissue culturing facility has closed down. For small areas, micro-fracturing can be performed at the time of a routine arthroscopy.

Partial Knee Replacement

If the arthritis is limited to a single area, a partial replacement may be the best option. The Oxford & Unix each have good long-term results, equivalent to TKR. Requirements for this surgery include a good range of movement and preferably the cruciate ligament is intact. A disadvantage is the scar may cause more numbness, but this seems to be offset by the otherwise more normal function than after total replacement.

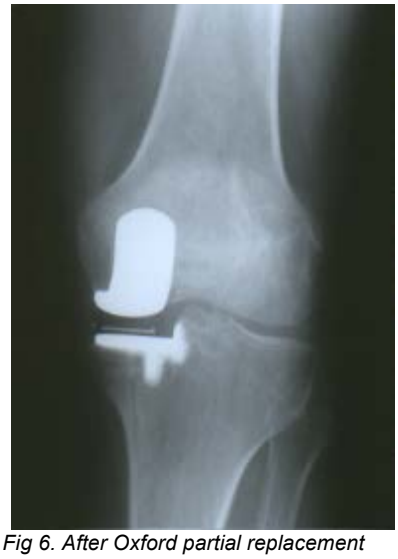

Fig 6. After Oxford partial replacement

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Total knee replacement

If more than one part of the knee is arthritic, a total knee replacement is required. The cruciate ligament is always removed. Whilst suitable for golf, the knee generally can't tolerate any higher activity level such as running after surgery. Usually the knee does not achieve a full range of movement, and only 50% of people are able to kneel. Some patients want a total knee replacement "to make sure". Recovery from a TKR is hard work.

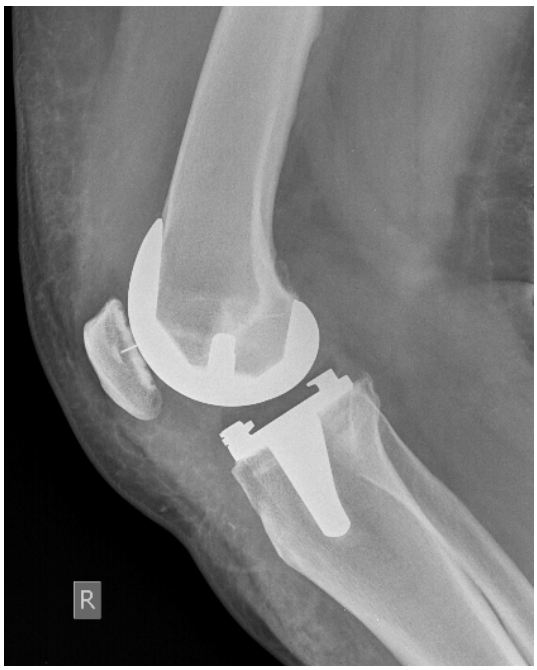

Figure 7. Vanguard Total Knee Replacement.

References:

Rand JA. Role of arthroscopy in osteoarthritis of the knee. Arthroscopy 1991;7(4):358-63
Abstract: Of 131 patients having menisectomy & chondroplasty 80% had improvement, deteriorating to 67% by 5 years. 12% unchanged and 11% worse. Of 28 without meniscal tear 39% felt improvement, 28% unimproved, and 32% worse.

Piedade SR; Pinaroli A; Servien E; Neyret P
Is previous knee arthroscopy related to worse results in primary total knee arthroplasty?
Knee Surg Sports Traumatol Arthrosc 2009 Apr;17(4):328-33 Summary: 60 TKRs performed average of 4.5years after an arthroscopy cf 1119 without prior surgery. 10 year survival worse with previous arthroscopy (86.8%, v 98.1%)

Nahabedian MY; Mont MA; Hungerford DS
Selective denervation of the knee: experience, case reports, and technical notes.
Am J Knee Surg 1998 Summer;11(3):175-80

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