PCL Injury and Reconstruction

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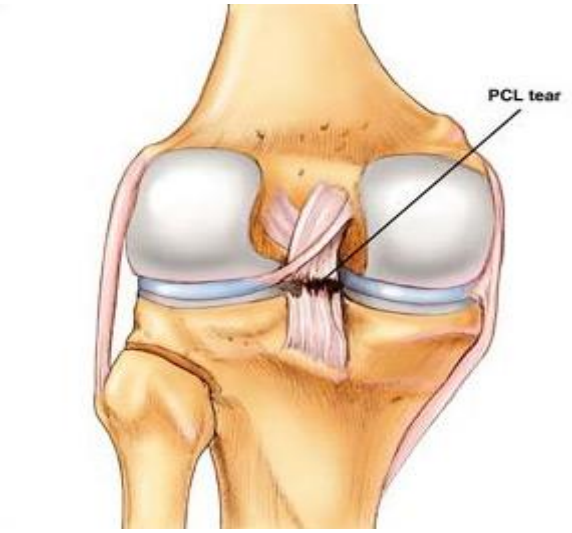
The posterior cruciate ligament (PCL) is one of the less commonly injured ligaments of the knee. The healthy PCL is one of several ligaments in the knee that joins the upper and lower legs together. The PCLs function is to provide stability to the knee during rapid acceleration and deceleration activities. It also provides stability when the knee is bent at 90°. The implications of a PCL deficient knee vary from patient to patient. Most individuals are able to function normally with the assistance of physiotherapy following an isolated PCL injury. However in some instances, particularly when a very active lifestyle is desired, PCL rupture may result in a sensation that the knee "just doesn't feel right" with certain activities.

THE CLASSIC HISTORY

The most common way for the PCL alone to be injured is from a direct blow to the front of the knee while the knee is bent. The classic PCL tear mechanism is a "dashboard" injury during a car accident in which a blow occurs to the front of the lower leg. This forces the lower leg backwards at the knee, rupturing the ligament. The same force can occur during a fall on the bent knee, or during a football tackle. Tears of the PCL can also result from an injury that over extends or over flexes the knee. PCL injuries can also be associated with other ligamentous injuries around the knee. These are usually the result of high-energy trauma.

The symptoms following a tear of the PCL are not the same in each person. Some people have more problems than others. At the time of injury you may have noticed marked pain at the back of the knee. This often settles quickly and without much swelling. Frequently athletes are able to continue playing. Once the acute injury settles some patients may have experience pain behind the knee cap or at the back of the knee itself. Activities such as running and going down stairs may be difficult or painful. Occasionally patients describe episodes of giving way during activity or a feeling of insecurity within the knee.

BACK OF KNEE



RATIONALE FOR TREATMENT

The goal of treatment of an injured knee is to return the patient to their desired level of activity without risk of further injury to the joint. Each patient's functional requirements are different. Treatment may be without surgery (conservative treatment) or with surgery (surgical treatment). The majority of patients with an isolated PCL injury usually can function without surgery. If other structures are damaged at the time of the injury, surgical reconstruction is usually performed.

Patients with multiple ligament injuries in association with a PCL rupture are recommended surgical reconstruction. Those patients who have failed non-operative management may also be recommended to consider surgical reconstruction.

TREATMENT OPTIONS

Conservative Treatment

Conservative treatment is by physical therapy aimed at reducing swelling, restoring the range of motion of the knee joint and rehabilitating the full muscle power. Proprioceptive training to develop the necessary protective reflexes is required to protect the joint for normal daily living activities. Some modifications to the running style may be all that is required for successful return to sport.

Surgical Treatment

Studies have shown that surgical reconstruction is best carried out on a pain free, healthy joint with a full range of motion. Patients are referred to their physiotherapists who supervise their knee rehabilitation prior to reconstruction.

All reconstructive procedures for the PCL require a graft. Our reconstructive technique involves grafting the torn PCL with segments of your hamstring tendons. This technique utilises specially designed screws allowing secure immediate fixation of the tendon within the joint allowing for more rapid rehabilitation. A brace may sometimes be used in the postoperative stage. The surgery is carried out usually as a day surgery procedure. Although PCL reconstruction surgery has a good probability of returning the knee joint to near normal stability and function, the end result for the patient depends largely upon a satisfactory rehabilitation and the presence of other damage within the joint. Advice will be given regarding the return to sporting activity, dependant on the amount of joint damage found at the time of reconstructive surgery.

Arthroscopy: Using an arthroscope the surgeon will remove the torn PCL and perform required meniscal surgery.

Graft Harvest: Through a single incision the hamstring tendons are removed to be used for the graft.

Tunnel Drilling: Small tunnels are drilled in the bone to prepare for graft fixation.

Graft Fixation: The graft is inserted into the drilled tunnels and fixed in place with screws. Depending on bone quality, supplementary fixation, in the form of a staple may also be required.

WHAT IS INVOLVED FOR YOU AS THE PATIENT

Before admission into hospital:

You will need to book your surgery at our Mater Clinic rooms. You will receive a package of information from us containing your admission, consent and questionnaire forms, which need to be completed and sent to the Mater Private hospital. You should also inform your surgeon and anaesthetist of any medical conditions, previous treatments or allergies as this may affect your operation. **You must contact our office before you go into hospital if there is any evidence of pimples, ulcers or broken skin around the area to be operated on OR if you have a cold, cough or infection evident. If you are taking medication you must check with the doctor as to whether you need to stop taking any of the medication prior to your surgery.**

Potential complications related to surgery

- Pneumonia: Patients with a viral respiratory tract infection (common cold or flu) should inform the surgeon as soon as possible and may have their surgery postponed. Patients with asthma should bring their inhalers to hospital.
- Deep vein thrombosis and pulmonary embolus: Although this complication is rare, a combination of knee injury, prolonged transport and immobilisation of the limb, smoking and the oral contraceptive pill or hormonal replacement therapy (HRT) all multiply to increase the risk. Any history of thrombosis should be brought to the attention of the surgeon. Smoking should cease one week prior to surgery.
- Excessive bleeding resulting in a haematoma is known to occur with patients taking aspirin or non-steroidal anti-inflammatory drugs - such as Voltaren, Naprosyn or Indocid and these should be stopped at least one week prior to surgery.

Potential complications specifically related to your knee reconstruction surgery.

- Postoperative bleeding & marrow exuding from the bony tunnel may track down the shin causing red inflamed painful areas. When standing up the blood rushes to the inflamed area causing throbbing. This should ease with elevation and ice packs. This is a normal postoperative reaction and only delays short term recovery.
- Due to the skin incision you may notice a numb patch on the outer aspect of your leg past the skin incision. The numb patch tends to shrink with time and does not affect the result of the reconstructed ligament.
- Your hamstring musculature will recover quickly and tendon regrowth may be felt at 14 days following surgery. However, scar tissue forms around the reformed tendons. This may tear and is felt as a pop or tear behind the knee on the inner side. This will usually set your rehab back a few days only and usually occurs before 6 weeks.
- Graft failure due to poorly understood biologic reasons occurs in < 1% of grafts.
- Surgery is carried out under strict germ free conditions in an operating theatre. Antibiotics are administered intravenously at the time of your surgery. Despite these measures, following ACL surgery there is a < 1 in 400 chance of developing an infection within the joint.
- As the surgery is designed to stabilise the joint, stiffness may result from excessive scar formations in the knee joint.

QUESTIONS COMMONLY ASKED

Q. Anaesthetic?
A. General anaesthetic

Q. Duration of operation?
A. Approximately 60-90 minutes.

Q. Is this procedure day only?
A. Yes, unless advised otherwise by A/Prof. Pinczewski.

Q. Do I need crutches?
A. Yes. You will need to bring these with you on the day of your surgery and they can be organised through your own physiotherapist or through your local chemist. Crutches will be required for mobilisation for the first 2 weeks post-operatively.

Q. When do I see a physiotherapist after the surgery?
A. Physiotherapy is commenced immediately. Physiotherapy is aimed at reducing swelling, re-activating muscle groups and regaining range of motion.

Q. Should I see a Physiotherapist prior to having the surgery?
A. Yes, this is known as prehabilitation and is beneficial.

Q. What medications should I cease prior to the surgery?
A. Any blood thinning medication should be stopped.

Q. Driving a car?
A. Driving an automatic car is possible as soon as pain allows after left knee surgery. Should the right knee be involved driving is permitted when you are able to walk without crutches.

Q. How long does it take for the swelling to go away?
A. After 8 weeks most of the swelling should be gone.

Q. How long do I need off work?
A. Sedentary and office workers may return to work approximately 5-7 days following surgery.

Q. When can I travel?
A. You can travel domestically after 7 days and internationally after 4 weeks.

Q. When can I play sport?
A. Playing sport non-competitively or training is possible at 6 months. A return to competitive sport is permitted at 9-12 months following surgery, provided that there has been a complete rehabilitation (including the PEP program). These sports should be discussed with A/Prof Pinczewski to establish a reasonable time frame for them to occur.

Q. When do I need to see A/Prof. Pinczewski after the surgery?
A. You will return for removal of the superficial dressings and a wound check at 7-10 days from surgery unless advised otherwise by A/Prof Pinczewski.

For any questions please do not hesitate in contacting our staff at NSOSMC on (02) 9437 5999
Anne Rusmussen/Renee Baume (Executive Assistants), Dr Lucy Salmon (Physiotherapist), Emma Fitzgibbon (Physiotherapist)
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For after hour assistance contact Mater Hospital (02) 9900 7300