High Tibial Osteotomy

Dr Justin Roe

North Sydney Orthopaedic and Sports Medicine Centre

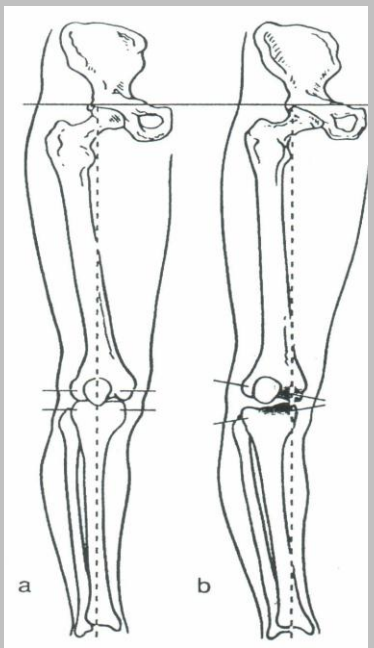
A painful osteoarthritic knee in a middle-aged recreational patient is one of the most difficult problems to manage. Initially, all patients should be treated conservatively; however, when pain worsens as the osteoarthritis progresses, surgical treatment should be considered. There are two major types of osteoarthritis in the middle aged- post traumatic and non-traumatic. Post-traumatic osteoarthritis occurs in patients who have had a previous knee injury as a young adult and may have had their meniscus, or part of it removed surgically. Non-traumatic osteoarthritis occurs in patients who have not had a previous knee injury and in whom the osteoarthritis is strongly genetically determined. Such patients often report a family history of early osteoarthritis.

SYMPTOMS AND SIGNS

The predominant symptoms of osteoarthritis of the knee are pain, swelling, stiffness and a decreased activity level. The pain generally worsens with activities and improves with rest. Commonly, wasting of the thigh muscle occurs. This in turn may increase pain and may also cause symptoms of giving way. Symptoms such as locking and catching may also be present. Isolated medial compartment osteoarthritis, affecting the inside of the knee, may be associated with progressive "bow-legs".

TREATMENT OPTIONS

An osteoarthritic knee in a young patient is a difficult problem to manage. Only certain patients will respond well to osteotomy, therefore Dr Roe will carefully consider whether you are a likely successful candidate. Some patients are able to be successfully managed with conservative means but for the middle aged patient who wishes to remain active in work and play an osteotomy may be a viable alternative. An osteotomy is most successful when performed during the early stages of osteoarthritis when patients have specific medial pain and difficulty performing routine activities.



In a normally aligned knee the weight bearing line is equally distributed through the inner and outer sides of the knee (Figure a). With medial compartment osteoarthritis the knee becomes bowed moving the weight bearing line through the damaged inner side of the knee.

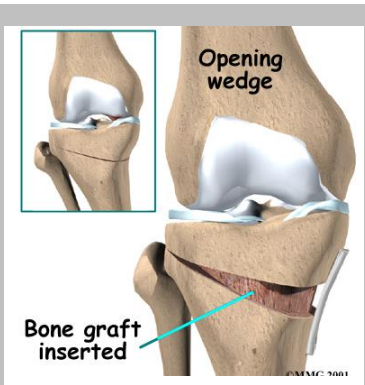
OSTEOTOMY

Osteotomy is an appropriate surgical option in selected cases of arthritis affecting one side of the knee only. The purpose of osteotomy is to transfer the load to an uninvolved joint surface. Osteotomy is most commonly performed for patients where the weight bearing surfaces of the knee joint become worn away on one side. The affected side of the joint is no longer smooth and free running and this leads to stiffness and pain.

It should be stressed that this surgery is designed to allow patients to walk without discomfort, not to return them to sporting activities. If adequate correction is achieved, the success rate of high tibial osteotomy at this practice is 91% at the 5 years and 80% at 10 years. Osteotomy is strongly recommended for the middle-aged patient with osteoarthritis. If the patient is nearing the age of 60, it is worth considering continuing with conservative measures for as long as possible so that when complete deterioration of the joint has occurred, joint replacement may be performed.

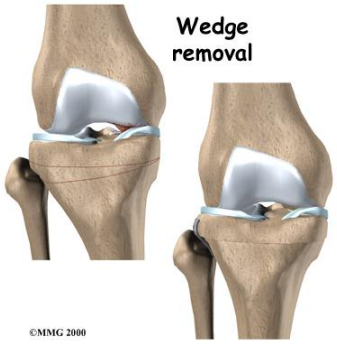
WHAT IS INVOLVED FOR YOU AS THE PATIENT

After your surgery: When you wake after surgery you will be in the recovery ward. From here you will be transferred back to your ward. Your will find your leg placed in a brace when you wake. This will stay on for the next 4-6 weeks. You will be given regular pain relief by the nursing staff in the form of an injection or tablet as required.



The alignment of the weight bearing line is altered to take the weight off the damaged inner side of your knee by opening a wedge (shown above) or removing a wedge (shown below). Dr Roe will decide which is preferable in your case.

Closing wedge



A physiotherapist will visit you in the afternoon of your surgery, or the following day. They will show you some exercises for your leg and get you up for a walk. You will begin walking with crutches and will need to avoid putting full weight through your operated leg. Once you are able to safely mobilise and care for yourself you will be discharged from hospital, usually 3-4 days after your surgery.

After your hospital stay: You will receive instructions from the nursing staff prior to being discharged from hospital. However, it is usual to be reviewed at 2 weeks after surgery for removal of the dressings and checking of your brace. The brace will be on for a further 2-4 weeks depending on Dr Roe's instructions. At 4 weeks after surgery you may begin to take partial weight through your operated leg as instructed. You will remain on warfarin (a blood thinner, to prevent blood clots) and have regular blood tests for a period of 2-6 weeks after surgery (while on warfarin). Dr Roe will review you at 6 and 12 weeks after surgery.

Potential Complications Related To Surgery:

- Pneumonia: After any general anaesthetic there is always a risk of developing a chest infection. This risk can be minimised by early mobilisation and performing deep breathing exercises after surgery. If you have any history of respiratory problem you should inform the staff at the hospital.
- Deep vein thrombosis and pulmonary embolus: A combination of surgery, immobilisation of the limb, smoking and the oral contraceptive pill or hormonal replacement therapy all multiply to increase the risk of a blood clot. Any past history of blood clots should be brought to the attention of the surgeon prior to your operation. The oral contraceptive pill, hormonal replacement therapy and smoking should cease one week prior to surgery to minimise the risk.
- Excessive bleeding resulting in a haematoma is known to occur with patients taking aspirin or anti-inflammatory drugs- such as Voltaren, Naprosyn or Indocid. They should be stopped at least one week prior to surgery.
- Surgery is carried out under strict germ free conditions in an operating theatre. Antibiotics are administered intravenously at the time of your surgery. Any allergy to any known antibiotics should be brought to the attention of your surgeon or anaesthetist. Despite these measures, following surgery there is a less than 3% chance of developing an infection. Most commonly these are superficial wound infections that resolve with a course of antibiotics. More serious infections may require further hospitalisation and treatment.

Potential Complications Specifically Related To Your High Tibial Osteotomy:

- Neuromuscular Injury-injury to the peroneal nerve can occur in patients following high tibial osteotomy. This may result in sensory loss or muscle impairment example: footdrop. Most patients recover without any permanent functional disability.
- Injury to the blood vessels around the knee during surgery is a very rare complication (less than 1%).
- Delayed or non-union of the osteotomy site may occur in 2 to 4% of cases. In such cases, further surgery is then required to get the bone to heal.
- Other potential problems include postoperative stiffness, pain and wound problems.

QUESTIONS COMMONLY ASKED

Q. How long will it take to get back to normal activities?

A. It will usually take a minimum of 3 months to improve your gait, strength, fitness and movement enough to get back to normal following the osteotomy surgery

Q. Will the leg look different?

A. The leg alignment will look different forever following the surgery. The muscle bulk and tone will be reduced and take some time to rehabilitate.

Q. Does the arthritis get removed from the knee joint?

A. The knee joint is not altered during the surgery. The alignment and consequent loads going through the arthritic areas of the knee joint are changed.

Dr Justin Roe, Orthopaedic Surgeon, NSOSMC
p: 9409 0500 www.justinroe.com.au e: admin@justinroe.com.au