Banff Sport Medicine

Pre-Operative Information

Tibial Tubercle Transfer Patella Realignment

What is a "Tibial Tubercle Transfer (TTT)"?

The tibial tubercle is the bony bump on the front of your leg where the tendon from the patella (knee cap) inserts. In TTT surgery the tuberosity, with the tendon attached, is cut and shifted medially. The tubercle is held in its new position with 2 screws made of stainless steel. Moving the tibial tubercle medially (towards the inside of the leg) treats patellar instability by decreasing the lateral pull on the patella. This causes the patella to move in a more correct line and makes it less likely to dislocate. Moving the tibial tubercle anteriorly can decrease the pain of severe arthritis by removing stress from damaged areas of bony cartilage. Moving the patella distally will also pull down a high riding patella. During the surgery a camera is used to look inside the knee (arthroscopy) to see if the patella is in a better position and also to check for and clean up any damage inside the knee. If your patella is unstable, a TTT may be done in conjunction with another patellar stabilizing surgery, such as a medial patellofemoral ligament reconstruction or imbrication.

Diagnosis:

- A history of recurrent patellar dislocations/subluxations with malalignment of the patellofemoral joint
- Arthritis behind a maltracking patella
- A high riding patella

Why perform a "TTT"?

- To prevent further episodes of patellar instability
- To prevent further damage to the cartilage behind your patella (i.e. osteoarthritis)
- To correct knee cap alignment
- To treat chronic anterior knee pain from patellofemoral arthritis caused by maltracking

Options other than Surgery

- Rehabilitation - some people can strengthen and cope after dislocating their patella. This involves intensive rehabilitation to improve core, hip and quadriceps strength, as well as balance and agility.
- Knee brace - some people with an unstable patella can participate in work or sports using a patellar stabilizing brace
- Adjusting lifestyle to avoid activities that cause patellar dislocations/subluxations

Surgery Timing

- We recommend all patients stay as active as possible before surgery. We recommend you follow the pre-surgery rehabilitation program, especially if you have weak quadriceps, hip and core. Your goals are to maintain full range of knee motion, improve your strength and balance, and build your endurance by doing straight-line activities and sports. Regaining your strength and maintaining your fitness will prepare you for surgery and also help you to recover faster after surgery.
- If your knee symptoms improve significantly while you are preparing for surgery and you would like to discuss conservative management of your patellar instability, please call the office (403-760-2897) to arrange a follow-up appointment before your surgery date

The Procedure

- The tibial tubercle transfer is done through a 4-6 cm incision in the front of your leg just below the knee joint.
- A surgical fracture (osteotomy) is made in the upper shin-bone (tibia) to move the tibial tubercle with the attached patellar tendon.
- The tibial tubercle is then moved to a new position that allows improved tracking of the patella, and is held in place with two screws.
- An arthroscope (camera) will be placed in the knee joint and used to assess the structures in your knee, as well as to evaluate the patellar cartilage and to assess patella tracking.

RISKS OF SURGERY

- *Risk of Infection: less than 1-2 in 100*
  - Intravenous antibiotics are given before and after surgery to help prevent infection.
  - If an infection occurs, it will usually happen within 5-7 days of your surgery. Some minor wound infections can be treated with a short course of oral antibiotics, whereas more severe wound or skin infections may require a longer course of intravenous antibiotics. In less than 1% cases, a deep infection can occur in the joint. In these cases, surgery is required to wash out the infection, followed by 4-6 weeks of intravenous antibiotics.

- *Risk of Clot in Leg Veins (deep vein thrombosis): less than 1 in 100*
  - If severe calf, ankle and foot swelling occurs 3 days to 2 weeks after surgery, you could have a clot in a deep vein of your leg (DVT). See a doctor as soon as possible. Treatment for a blood clot is blood-thinning medication (anticoagulants) for 3-6 months.

- *Risk of Clot in Lungs (pulmonary emboli): less than 1 in 500*
  - It is possible for a blood clot to travel to your lung; this is called a pulmonary embolism. If you suddenly get short of breath or have chest pain go to the nearest emergency room or call 911. A pulmonary embolism is a medical emergency and can cause death.
  - In certain patients with risk factors for a blood clot, preventive blood thinners will be prescribed for a short period of time after surgery

- *Risk of Injury to Artery or Nerve: less than 1 in 1,000*
  - This is a very rare occurrence

- *Risk of Non-union: approximately 1-5 in 100*
  - The gap created in your tibia bone must heal in a similar manner as a fracture. In some people, the bone healing may be delayed or not heal properly at all. This is much more likely if you are a smoker. This problem may require additional surgery with more bone grafting to encourage healing. In some situations a patient may be required to purchase or rent a bone stimulator machine to enhance healing

- *Risk of Compartment Syndrome: less than 1 in 100*
  - Usually occurs 24-48 hours post-surgery if severe swelling develops in the muscle compartments below the knee. This problem requires further surgery to release the pressure (fasciotomy).

- *Skin Numbness around Incision: very common*
  - Every patient gets some numbness around their incision because some small surface nerves are cut during surgery. This can be along the incision or can affect a larger area of the leg (up to 20 sq. cms). This may disappear slowly over time, depending on the patient.

- *Risk of Knee Stiffness: less than 1 in 100*
  - Some patients have problems with knee stiffness after TTT surgery. These patients will need intensive physiotherapy and may need another surgery to mobilize the joint.

- *Risk of Persistent Swelling and Pain: less than 5 in 100*
  - The TTT improves the biomechanics of your knee but doesn't change the amount of damage or wear of bony cartilage inside your knee. Some patients will have ongoing pain and swelling from their osteoarthritis. This can be managed with injections and other non-operative treatments for arthritis.

Your Stay in Hospital

- You are not allowed to have anything to eat or drink after midnight (24:00) before to your surgery.
- If you have prescribed medications you need to take each day, the nurse from the Pre-Assessment Clinic will give you instructions before your surgery about if and when to take them.
- You will be admitted to the hospital on the day of your surgery. Your admission time will be approximately 3 hours prior to your actual surgery time. Report to the Front Desk of the Banff Mineral Springs Hospital, unless instructed otherwise. Your surgery will take 1-2 hours.
- You can have a TTT with either a general or spinal anaesthetic. Some of our research suggests that patients have less overall pain and require less pain medication when having spinal anaesthetic. Your anaesthetist will discuss these options with you on the day of surgery.
- Most patients will stay in hospital for 1 night after surgery
- Please do not go to the dentist two weeks before, and six weeks after surgery, due to the increased risk of infection.
- If you have insurance forms please bring them to our office on the day of, or before your surgery. This will ensure your forms are completed and posted back in time. Alberta Health Care does not cover the cost of completing insurance forms and a fee will be charged.

Other Costs

- Crutches can be purchased at the Banff Mineral Springs Hospital. If you bring your own with you please make sure they are clearly labeled.
- Cold Therapy Unit - is used to help control pain and swelling after the surgery. This unit can be purchased from our office by ordering at least a week before your surgery. The order form is included in this package
- Brace - A hinged knee brace may be prescribed by your surgeon to protect your knee for the first 6 weeks. This can be purchased from the hospital.

Postoperative Pain Control

- Rest, ice, compression, and elevation of your surgery leg
- You will be given a prescription for pain medication (Tylenol #3 or Percocet) and sometimes an anti-inflammatory (Naprosyn) before you leave the hospital. You may take an anti-inflammatory medication along with your pain medication. If you have medication allergies or intolerances other medications will be substituted. If you have any questions about medications please ask your surgeon.

Postoperative Wound Care

- The nurses will check the dressing on your knee before you go home, and replace it if necessary. You should take this dressing off 4 days after your surgery. If the tensor bandage on your leg rolls-up or causes pressure in one area you should take it off and have someone reapply it for you.
- For all other dressings, you may shower 4 days after surgery and should dry your incisions gently with a clean towel. You can peel the steri-strips off 2-weeks after your surgery. You may also cut any stray clear stitches at skin level. Due to the risk of infection, do not fully immerse the incisions in bath water for 2-3 weeks after your surgery and do not enter a swimming pool or hot tub for at least 3-weeks after surgery.

- Redness and pain along the shin (caused by blood and subsequent inflammation into the area) can occur 3-7 days after surgery. This usually goes away 7-10 days after surgery and is not a concern unless your incisions are also red.
- **If you have concerns please call our office at 403-760-2897 during business hours. Of an evening or weekend please call the Banff Mineral Springs Hospital at 403-762-2222, before seeing your family physician or going to an emergency clinic.**

Discharge from Hospital

- Before noon (12:00) the day of discharge.
- You must have someone to drive you home
- Make sure you have your prescriptions for pain medication, anti-inflammatory medication and physiotherapy
- A hospital physiotherapist will instruct you on brace use and crutch walking. You will be given a rehabilitation protocol to take to your therapist
- Minimum 1-week resting at home with leg elevated and regularly icing your knee
- We recommend starting with 50% weight bearing, with progression to full weight as long as the knee brace is worn and crutches are used for balance
- Crutches may be used for up to 6-weeks depending on bone healing
- Discuss any travel plans with your surgeon because long trips can increase the risk of blood clots for the first 6-8 weeks after surgery

Follow-up Visits with Dr. Heard/ Buchko/ Hiemstra

- Your surgeon will follow you after surgery at: 2-4 weeks, 6 weeks, 3-months, 6-months, 1-year and 2-years. The surgeon's medical office assistant will give you the time, date and location of your first post-operative appointment when they call you before surgery.

Return to Work Guidelines

- Sedentary work: 4-6 weeks
- Light manual work: 3-4 months
- Heavy manual work: 4-6 months

Physiotherapy

- See your physiotherapist 1-2 weeks after your surgery
- The hospital physiotherapist will give you the Banff Sport Medicine Post-operative Rehabilitation Protocol. Please take the protocol to your physiotherapist for him/her to follow. If you or your therapist has any questions, please call our office at 403-760-2897.
- Based on your goals and your insurance coverage, you should discuss an appointment plan with your physiotherapist during your first post-operative visit. If you have limited funding for physiotherapy please make sure you space your visits out over the first six months after surgery.

Return to Full Activities and Sports

- Your surgeon will be able to tell you when you can go back to sport. For most patients, you can start biking on a stationary bike (with a high seat and at minimal resistance) at 4-weeks and can start light impact activities 12-weeks after surgery. The type of sport and your level of strength and function (when we test you) will help to guide the surgeon's recommendations.
- Some patients who have more damage inside their knee may be told to protect their knee by doing fewer sports and activities that use a lot of running, jumping or pivoting. This is important to avoid too much load on damaged joint surfaces and may help to delay arthritis. Your surgeon will give you advice about return to sport based on the amount of damage seen inside your knee at the time of surgery.