What is a Tibial Tubercle Osteotomy (TTO)?

A Tibial Tubercle Osteotomy is a surgical procedure used to treat patella maltracking with or without cartilage defects.

Who is a candidate for a Tibial Tubercle Osteotomy?

Tibial tubercle osteotomies are used to treat patients who suffer from painful patellar maltracking. These patients may have had issues with patellar dislocations in the past. Often patients who suffer from patellar maltracking have chronic anterior knee pain. This is often manifested as pain with going up and down stairs and or sitting for prolonged periods of time. Tibial tubercle osteotomies are only effective in patients who do not yet have bone on bone osteoarthritis between their patella and femur (patellofemoral joint). Tibial tubercle ostetomies can be performed in conjunction with autologous chondrocyte implantation as an effort to treat both maltracking and cartilage damage caused by it.

What will happen during my surgery?

Your surgery will be performed using either a general anesthetic or a spinal anesthetic depending on your and your surgeon’s preference. During your surgery your surgeon will make a cut across the upper portion of your tibia (shin bone). The cut that is made will be just behind what is known as the tibial tubercle. This is the area of your tibia where your patellar tendon attaches. Making this boney cut allows your surgeon to relocate your tibial tubercle to a more centralized location, thus...
correcting any maltracking. Once your tubercle has been repositioned it will be fixed back to your upper tibia using two screws. These screws act like a cast to hold the bone in place while it heals. These screws do not need to be removed. Some patients do find that they have some irritation from the retained hardware and in these cases both screws can be removed during a day surgical arthroscopy. Once your osteotomy is completed your skin incision will be closed using all subcutaneous or “dissolvable” sutures. Your wound will be dressed and you will be woken up from anesthesia.

**What can you expect post-operatively after a Tibial Tubercle Osteotomy?**

When you awake from surgery you will have a brace on your leg that will keep your leg straight. It will be important for you to wear this brace at all times when you are up and about. You do not have to wear your brace to sleep. You will also be given crutches. You will remain touch down weight bearing for a period of 6-8 weeks. This means that you will walk with two crutches at all times putting only the weight of your leg to the ground for balance. You will also receive a CPM machine. This is a continuous passive motion machine that gentle puts your knee through a preset ROM. This is designed to ensure that you do not get stiff after surgery and will be used for 4-6 hours per day. Depending on your surgeon and how you are feeling you will spend anywhere from 1-3 nights in the hospital. Do plan on spending at least one night. This is in order to make sure that you are comfortable and that your pain is well controlled. This time in the hospital also allows you to also meet with physical therapy and get some early exercise and crutch training. After surgery you will also be on a blood thinning medication called Coumadin. This is done as a preventative measure for all of our patients to help prevent blood clots following surgical intervention. This will be managed by the Brigham and Women’s anticoagulation clinic. You will be required to take this medication for a period of 3 weeks times. When you go home from the hospital a visiting nurse will be coordinated for you to come visit you at home once or twice per week to draw your blood. These blood draws are important to managing your dosage of Coumadin. In some patients with no risk factors for blood clot anticoagulation
prophylaxis will require a simple daily aspirin. This is a decision that your surgeon will make with you the day of surgery.

**How will my pain be controlled after surgery?**

Immediately following surgery during your inpatient stay your pain will be controlled using IV pain medication. During your inpatient stay one of the goals of your care will be to transition you from IV pain medication to oral pain medication. This is often achieved by day one or two after surgery. You will be sent home from the hospital with a prescription for oral pain medication to be filled at your local pharmacy. The most commonly prescribed post-op pain medications include Oxycodone, Dilaudid, or Vicodin. Most patients will require regularly scheduled doses of pain medication (every 4-6 hours) for the first two to three weeks. Following week three you will begin to decrease your pain medication use to prior to physical therapy and prior to bedtime. Most patients will not require any pain medication past week 6-8. You will be provided with detailed instructions on how to obtain pain medication refills from your surgeon’s office. This information will be provided to you with your surgical packet once a surgical date has been scheduled. It is important to know how to obtain your pain medication refills appropriately and in a timely manner.

**When will I follow-up with my surgeon after surgery?**

Your first post-operative visit will be with your surgeon’s Physician Assistant. This appointment will take place 2 to 3 weeks after your surgery. This appointment is critical for checking your incision healing and range of motion as well as to answer any questions you may have in the first few weeks following surgery. You will then follow-up with your surgeon 6 weeks after surgery, 12 weeks after surgery, 6 months after surgery, and one year after surgery. At one year post-op you will discuss with your surgeon your return to higher level activity. After your first year you will follow with your surgeon on a yearly basis.

**FAQ’s**
How do I get insurance approval for surgery? Your insurance approval will be handled by your surgeon’s administrative assistant. Often you do not need to do anything but wait for the administrative assistant to contact you to let you know you have been approved. In some instances appeals need to be made to your insurance company for denial of services, if this is the case the administrative assistant will contact you and instruct you on how to proceed.

How long is my insurance approval good for? Most insurance approvals are good for one calendar year from the date of approval.

When will I start physical therapy? You will start physical therapy beginning the day after surgery in the hospital this will be continued once you are discharged.

What will I do during physical therapy? The primary goal of physical therapy is to initially increase ROM so that you do not get stiff following surgery. You will then begin to work on increasing strength after surgery. You will be provided with a detailed protocol of what you should and should not be doing during each post-operative phase. You will provide this to your physical therapist.

I’ve heard about a CPM machine, what is this and will I use one? A CPM machine is a Continuous Passive Motion machine that is used following knee surgery to help patients regain range of motion. You will begin using a CPM machine 2-3 days after surgery and will continue using it for a period of 3 weeks for 4-6 hours per day. The CPM machine will be provided to you and is often covered by your insurance.

When do I need to wear my brace? You will need to wear your brace anytime you are up moving around on your crutches. You will use your brace for 6-8 weeks on average. You do not need to wear your brace for sleeping or when you are sitting.

How long will I need to use my crutches? Depending on how quickly your bone heals and your surgeon’s preference you will need to use your crutches between 6 and 8 weeks on average.

When can I drive? For patients undergoing right leg surgical intervention you may not return to driving until you have discontinued using your crutches (approx. 6-10 weeks). For patients undergoing left knee surgery that do not drive standard transmission vehicles you may return to driving between 3 and 6 weeks when you are no longer taking pain medication.

When can I shower? You may shower 5 days after surgery but may not submerge your incision in a pool, hot tub, bathtub, lake or the ocean for 3 weeks.

When can I go back to work? This will be different for each patient and depends largely on the type of work you do. Most patients who work in a sedentary position or desk work will be back to work by 6 weeks. Those patients who work in more labor intensive jobs may be out of work for up to 12 weeks.
When can I resume my regular activity? Return to regular activity depends highly on each individual patient’s definition of regular activity. Non impact activity such as walking, swimming, bike riding, and elliptical trainer can all be resumed by 4-5 months. Higher demand activity such as running and sports will not be able to be resumed until at least 1 year post operatively.

Will I need to stay in the hospital?  
You may be required to spend 1-3 nights in the hospital.

I don’t like how narcotic pain medication makes me feel, can I take something else?  
You may use Tylenol (acetaminophen) for pain control following surgical intervention. However, you should refrain from using any anti-inflammatory for the three months following surgery as it can slow the healing of your bone. These anti-inflammatory medications include medications such as Advil, Aleve, Ibuprofen, Naproxen, and Celebrex.

Who do I call if I have a question prior to my appointment?  
If you have questions regarding your upcoming surgery you may call your surgeon’s physician assistant. For Dr. Minas please call Lindsey Oneto at 617-732-9729. For Dr. Gomoll please call Courtney VanArsdale at 617-732-9264.