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Tibial Plateau Fracture



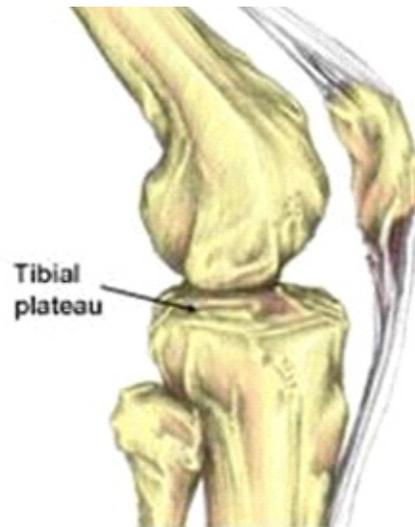
MARTHA'S VINEYARD
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The tibial plateau is the upper surface of the tibia or shin bone. It is prone to becoming fractured in high speed accidents such as those associated with skiing, horse riding and certain water sports.

Tibial plateau fracture symptoms

There is normally a recent history of trauma to the knee area followed by swelling and pain in the joint. The patient may complain of stiffness of the knee and be unable to weight bear on the injured leg.

What is a tibial plateau fracture?

Fractures of the tibial plateau are considered quite serious as this upper surface of the bone contains structures which are critical to the knees functioning. Hence, fractures of the tibial plateau are often associated with injuries to the anterior cruciate ligament, collateral ligaments (MCL or LCL), menisci and articular cartilage. This damage, although repairable, highly disposes the knee joint to the early onset of osteoarthritis, particularly in younger patients.

Initial treatment of a tibial plateau fracture

Rest and apply cold therapy or ice and compression to help reduce pain and swelling. Seek medical assistance immediately.

In order to correctly diagnose a fracture, an X-ray must be performed. If soft tissue (ligaments, cartilage etc) damage is suspected an MRI scan may also be advised. Once the tibial plateau fracture has been diagnosed a number of treatment options are available depending on the extent of the damage.

In surgical terms there are 6 different classifications of tibial plateau fractures, depending on the severity and the nature of the injury. However, broadly speaking fractures of the tibial plateau can be separated into two main groupings: Displaced and Non-displaced fractures.

Definitive treatment for tibial plateau fractures

Non-displaced tibial plateau fracture

A non displaced fracture of the tibial plateau is when the tibia sustains a break or crack without a fragment of the bone becoming separated. These fractures normally have a better future outcome than displaced fractures and usually heal without surgical intervention within 3-4 months. Within this time the patient may be required not to weight bear and to wear a knee brace on the the injured knee.

Physical therapy rehabilitation exercises are needed to maintain leg strength soon after injury and should be continued throughout the recovery phase.

In cases where there is solely a bone bruise or a very mild nondisplaced fracture, the treatment can vary dramatically compared to those where there is a complete fracture or any step-off deformity or comminution of the fracture. In those cases where there is a bone bruise or a nondisplaced fracture which does not cause significant pain, such as in high-level athletes, a rehabilitation program to allow the swelling to resolve followed quickly by, a low-impact exercise program, to include low resistance cycling and working in a pool, can help to maintain ones cardiovascular endurance and allow for a quicker return to activities.

In circumstances where there is bone bruise with a small fracture which is not displaced surgery is not required, if the athlete is able to participate in low-impact activities without having any problems with pain or swelling, they can often maintain their cardiovascular reserves to the point where they do not need an extended period of time after the fracture heals to return to sporting activities.

In certain cases, a minimum of 6 weeks is usually necessary to allow the fracture to completely heal so that there is no risk of a reinjury. In those fractures in which there is a larger disruption of the bone, the athlete may need to be nonweightbearing for 6 weeks and then will need time to recover from the atrophy of not walking on that extremity prior to returning to activities. In those circumstances, it can 12 weeks or longer to return to activities. In those athletes we do require surgery to stabilize the fracture or restore the step-off deformity; the downtime is usually much extended with at least 6 weeks of no weightbearing and up to several months of rehabilitation to restore their overall strength. In addition, if there is any significant traumatic arthritis because of damage to the cartilage, some patients may continue to have problems with pain or swelling with activities that can affect the ability to return back to high-level activities at work or play and can affect the length of their athletic/occupational career.

Displaced tibial plateau fracture

A displaced fracture is one where the bone breaks into two or more fragments. In this case surgery is normally needed to re-fix the fragments in place to encourage correct healing of the bone tissue. This fixation is usually achieved by placing screws and/or plates in and around the bone fragments to keep them secure.

Recovery following surgery may take a number of months and will require the patient not to weight bear for a long period of time. If soft tissue injuries have been sustained this recovery process may take longer.

Risks of surgical treatment for tibial plateau fractures:

The risks of surgical treatment include infection, wound healing complications, posttraumatic/postsurgical stiffness, loss of fracture fragment alignment, failure of the hardware to maintain corrective position or loosening of the hardware itself from the bone. In addition damage to neighboring nerves including the peroneal and tibial nerves and postsurgical swelling resulting in compartment syndrome are uncommon but serious complications. Deep vein thrombosis and pulmonary embolism are risks associated with tibial plateau fractures whether treated nonsurgically or with surgical treatment. Prevention strategies have been developed for each of these potential post injury/postsurgical complications despite these advances, consultation still to occur and cannot always be prevented.

Additional surgery for either removal of hardware or joint reconstruction is not at all uncommon after tibial plateau fractures requiring surgical treatment.

Prognosis: The results of both nonsurgical and surgical treatment for tibial plateau fractures typically include recovery of functional range of motion of the knee, risk for residual pain with weight-bearing secondary to the joint surface damage and certainly the risk of posttraumatic arthritis in the months or years to come. Patients who develop debilitating pain and loss of function from posttraumatic arthritis can often achieve significant improvement in both of these problems with subsequent total knee arthroplasty.

Helpful website:

www.orthoinfo.org

Reviewed: _____ Date: ____/____/____