

## TREATMENT OF MULTIPLE LIGAMENT KNEE INJURIES

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Current trend for the treatment of multiple ligament knee injuries is to repair or reconstruct all torn structures. This approach is over-treatment and leads to complications, but surgeons accept high complication rate because some patients have disabling results when no surgery is performed in some patients (usually lateral side injuries). However, if treatment is provided based on each structure's ability to heal, good outcomes can be obtained with a low complication rate.

In general, the Anterior Cruciate Ligament (ACL) and lateral structures cannot heal without surgery but the Posterior Cruciate Ligament (PCL) and Medial Collateral Ligament (MCL) can heal without surgery. Previous studies showed that a torn PCL of any grade can heal, either in isolation or when other ligaments are torn. In a Magnetic Resonance Imaging (MRI) study of PCL healing, 21 of 23 isolated PCLs healed and 12 of 12 PCLs healed in PCL/MCL injuries. In 2 PCL/MCL/ACL injuries, the PCLs and MCLs healed but the ACL did not. In 3 PCL/ACL/Lateral side injuries, the PCLs healed but the ACLs and lateral side injuries did not.

In a long-term natural history study of non-operatively treated isolated PCL injuries, there was no difference in subjective scores or grade of osteoarthritis between patients with 1+ or 2+ PCL laxity. My treatment approach to knee dislocations is dependent upon whether the injury includes the medial or lateral structures.

For medial side knee dislocations, the PCL and MCL are allowed to heal. Temporary immobilization will allow the MCL to heal, and I prefer serial weekly casting with the knee in about 30° of flexion. When the MCL is torn proximally (most common), the MCL will heal in 1-2 weeks. Distal MCL injuries may take 2-3 weeks of serial casting. Casting provides better medial stability than a brace that usually has some play in it. Once the MCL is healing and has an endpoint on medial laxity examination, casting is discontinued and exercises are implemented to obtain full Range Of Motion (ROM) and good leg control. Once the patient has undergone rehabilitation, you may find knee stability is sufficient for the patient's lifestyle, but an ACL reconstruction can be performed electively as needed.

Lateral side knee dislocations make up about 10% of knee dislocations and only about 1% of all knee ligament injuries. If unrecognized, patients will have disabling symptoms. The PCL can be left in situ to heal. The lateral side injury requires semi-acute surgery for repair because they typically tear distally and retract proximally above the joint. Lateral side injuries can involve the Ilio-Tibial band, lateral capsule, popliteus, Lateral Collateral Ligament (LCL), biceps tendon and lateral gastrocnemius. The lateral structures heal en masse quickly after injury. Surgery to reattach the structures en masse provides good stability in the long-term. A study of 17 patients with 5 years follow-up showed a mean International Knee Documentation Committee (IKDC) subjective score of 92 points. IKDC objective exam showed ratings of 11 normal and 6 nearly normal and all but 1 patient had full range of motion. All lateral side structures were healed as observed on MRI, and the PCL was also seen as healed. An ACL reconstruction can be performed at the same surgical setting as the lateral side repair.

A simple treatment multiple knee ligament injuries can yield good outcomes. The PCL should be left in situ to heal. The MCL should be treated non-operatively with cast immobilization for 1-3 weeks, with weekly check on stability. Lateral side knee injuries require semi-acute repair to reattach the en masse structures that have retracted proximally above the joint. An ACL reconstruction can be performed electively depending on the patient's lifestyle demands.