

Knee Injury

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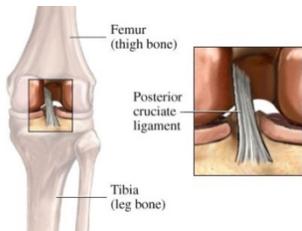


Posterior Cruciate Ligament Tears

The vast majority of acute knee ligament injuries involve the ACL or MCL. However a PCL tear will present occasionally. These injuries are often misdiagnosed, so their frequency may be under-reported.

Anatomy

The PCL is intracapsular but extrasynovial, It runs from the roof & medial side of the intercondylar notch, then posteriorly and inferiorly to the superior aspect of the tibial shelf. It provides the main restraint to posterior tibial translation,



and secondary restraint to external rotation. Like the ACL, it has two bundles, but is thicker and stronger than the former.

Pathology

A PCL injury can be a midsubstance tear of one or both bundles, or a bony avulsion at the tibial attachment. In addition, there will sometimes be injury to other posterolateral structures, including the lateral collateral ligament and popliteus complex. This will lead to a significant increase in posterior laxity.

Secondary injury to meniscal and chondral cartilage frequently occurs. Longitudinal tears to the anterior horn of the lateral meniscus are common, along with radial tears to the middle or posterior lateral meniscus.

Injury mechanism

The most common mechanism is a blow to the anterior tibia with the knee flexed, via a dashboard injury, a fall onto the



knee, or body contact in sport. Hyperextension is an uncommon mechanism, and is more likely to tear the ACL first.



Examination and clinical features

As the PCL is extrasynovial, and as accompanying posterior capsular tears are common, bleeding due to PCL rupture usually escapes the joint, and swelling is minimal. The patient complains of poorly localized and possibly posterior knee pain. They will have difficulty with deceleration, & running downhill. Patellofemoral pain is common in sub-acute and chronic cases, as tibial posterior translation increases stress on this joint.

Tests: The increased laxity due to PCL injury is minimal at full extension, due to joint congruency and tension in the remaining ligaments. Laxity is greatest at 90°, so the most popular test for this injury is posterior glide at 90° - the *posterior draw* test. This can be taken further by retesting with tibial internal rotation, where MCL tension should result in decreased translation if there is an isolated PCL tear. Secondary tests include:



- the *reverse Lachmann's*, performed at 20° - 30° flexion.
- the *posterior sag*. Compare left and right sides at relaxed 90° flexion. The degree to which the tibia rests posterior relative to the femur gives an indication of the



degree of laxity present.

- *Dynamic extension.* If the tibia lies posterior at rest, quadriceps extension should 'relocate' the tibia.

Imaging

Plain X-ray is important to exclude a bony avulsion of the tibial insertion, which will be seen best on a lateral view. If present, this should be surgically reattached. MRI is accurate for diagnosis of the acute injury, but less so in chronic cases.



Treatment

These injuries usually do well with conservative treatment, though return to sport may take 8-12 weeks. Bracing may be necessary for the initial two weeks with severe injuries. Intensive quadriceps strengthening is the most important aspect of rehab. Surgery is considered when there is a combined PCL / posterolateral corner injury, where significant rotatory instability is present, or to reattach a tibial avulsion.

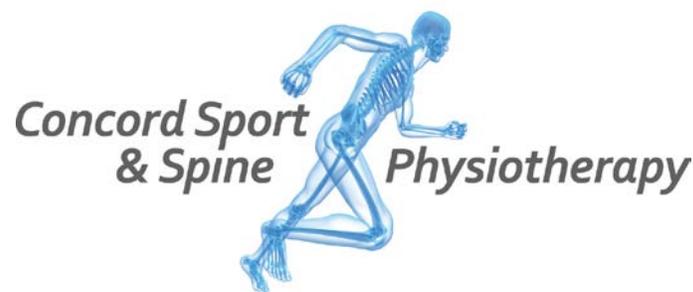
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