Knee Dislocation in a College Football Player
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**Personal data:** An 18 year old male participating in a college football scrimmage sustained a right knee dislocation while attempting to make a tackle. The mechanism of injury was described as valgus/rotation involving contact with resultant deformity. The athlete reported self-reduction. Following on-field evaluation by the athletic training staff, the athlete was immobilized with a vacuum splint and transported via ambulance to a local hospital for orthopaedic consultation.

**Physical Signs and Symptoms:** On-field evaluation demonstrated gross laxity without end-point during anterior, posterior and valgus rotation examinations. Varus testing was stable. An immediate effusion was evident. Distal neurovascular exam was intact.

**Differential Diagnosis:** Complete tears of the anterior and posterior cruciate ligaments, medial collateral ligament tear, possible involvement of the posterior lateral ligament complex; rule out meniscal and/or chondral injury right knee.

**Diagnostic imaging/laboratory results:** X-rays revealed no significant bony fractures status post knee dislocation with reduction. MRI revealed complete disruption of anterior cruciate and posterior cruciate ligaments, a mid one-third medial collateral ligament tear and lateral meniscus tear.

**Clinical course:** The athlete was discharged from the hospital and participated in a two week course of pre-operative rehabilitation achieving significant gains in range of motion 0 – 90°, deceased effusion, improved patella mobility, and improved quadriceps control. Seventeen days status post injury, the athlete underwent a right knee arthroscopic anterior cruciate ligament reconstruction using a bone-tendon-bone allograft, arthroscopic posterior cruciate ligament reconstruction using an Achilles tendon allograft, an extraarticular medial collateral ligament reconstruction using an Achilles tendon soft tissue allograft, and an arthroscopic partial lateral meniscectomy. The athlete was started immediately on a post-operative rehabilitation program. The athlete progressed extremely well throughout the post-operative course. Range of motion, right lower extremity strengthening and weight bearing status were gradually progressed via a criteria based post-operative guideline. At five months post-op, the athlete underwent a removal of hardware procedure, which resulted in improved range of motion. By six months range of motion had progressed to 0 - 132°. Good eccentric right quadriceps control was demonstrated and a running program was initiated. Eleven months following multiple ligament reconstructions range of motion had improved to 0 -138°. Crossover hop test revealed 104% limb symmetry. KT1000 knee ligament arthrometer testing at
89N revealed 1.5mm and 5mm side-to-side difference in total AP displacement at 30 and 90 degrees respectively. The athlete was fitted for a multiple ligament functional brace and returned to intercollegiate football competition without any significant complications.

**Deviation from the expected:** Knee dislocation is a traumatic injury, often resulting in an unstable and dysfunctional knee. Early management including assessment of vascular integrity, diagnostic testing, and clinical evaluation are essential in determining course of treatment. Pre-operative rehabilitation to improve range of motion and lower extremity strength improved post-operative outcome. A criteria-based post-operative rehabilitation guideline for a multiple ligament-reconstructed knee along with excellent athlete compliance resulted in a most successful clinical outcome to include a return to college football participation.