Complex Regional Pain Syndrome in an Adolescent Athlete
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Background: A fifteen-year-old Caucasian male high school basketball and cross-country athlete complained of anterior right leg pain and ecchymosis that extended from the posterior mid-thigh to the mid-calf area. His past history consisted of an avulsion fracture of his left anterior superior iliac spine and a superior and inferior pubic rami stress fracture diagnosed six months prior. Ten days prior to the current complaint, the patient sustained an injury to the right knee while running track. He stated that he made a sharp turn on a gravel path and twisted his knee. He felt a pop and had immediate pain and general instability. Following the initial assessment, a medial collateral ligament sprain and possible bone contusion were suspected. At that time there was no ecchymosis, gross deformity or edema and no sensory complaints. The patient was placed non weight bearing in a knee immobilizer and referred to an orthopedic physician. The patient presented to the physician with an antalgic gait, mild effusion and flexion range of motion limited to 90 degrees. Magnetic resonance imaging revealed only a bone contusion in the area of the medial femoral condyle. The patient was advised to continue wearing the brace and follow up with physical therapy. Upon current assessment, the patient's active range of motion was limited to thirty degrees of flexion however passive range of motion was full. Nothing else was remarkable other than his complaint of pain and ecchymosis. Differential Diagnosis: Medial collateral ligament sprain, bone contusion, rheumatoid arthritis, complex regional pain syndrome, reflex sympathetic dystrophy, peripheral neuropathies and nerve entrapment syndromes.

Treatment: After immobilization and conservative treatment failed to relieve symptoms, the patient was referred a physiatrist to rule out Complex Regional Pain Syndrome (CRPS). The patient initially presented to the physiatrist with severe bruising and slight discoloration of the right leg. The patient stated that the pain had worsened since the original knee injury and expanded to the entire right leg region. The pain was greater with walking and general weight bearing and was even elicited by changes in weather and light touch. Further examination revealed strong peripheral pulses with slight blue discoloration and bruising over the anterior and lateral aspect of the knee. Slight hyperesthesia was noted on the lateral aspect only. Reflexes could not be elicited secondary to pain. His discomfort was only minimally relieved with analgesic medication. At this point it was decided that a right lumbar sympathetic block with fluoroscopy would be performed at L3 to confirm the diagnosis of Type I CRPS and provide relief. Complete relief was obtained after the initial injection for three days. Following a second injection exactly one week later, the patient reported complete pain relief, normal color and return of functional movement. He returned to physical therapy and was cleared for full activity within a few weeks. Uniqueness: The pathophysiology of CRPS remains unclear. It has been suggested that it may include both sympathetic and non-sympathetic pathways, and both central and peripheral neuronal pathways. It is much more common in women and the average age of affected individuals is about 40 years. Recurrence rates appear higher in adolescents than in adults however our patient has not had a recurrence. Conclusions: CRPS is often misdiagnosed because this condition is poorly understood. The prognosis is generally much better when the condition is identified and treated as early as possible, ideally within three months of identifying the first symptoms. Aggressive treatment can prevented more permanent and more difficult-to-treat neurodegenerative changes often associated with chronic CRPS symptomology. Word Count: 583.