Chronic Ankle Sprains in a Collegiate Soccer Goalkeeper
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Background: We present a unique pathological injury involving severe loss of foot and ankle joint motion due to joint contractures and adhesions. An 18 year old male collegiate soccer goalkeeper (weight=72.57 kg, height =172.7 cm) presented to the athletic trainer during the second week of off-season practice with bilateral non-traumatic pain in the anterolateral ankle that was radiating proximally to the lower leg causing immobility during activity. The physical examination revealed a moderate amount of palpable tautness in the triceps surae complex and Achilles tendon. Passive range of motion testing of the ankle resulted in bilaterally abnormal firm end feels with substantial limitations in dorsiflexion and inversion. Active range of motion goniometric measurements were: plantarflexion (R-30° and L-28°), dorsiflexion (R-10° and L-8°), inversion (R-18° and L-16°), and eversion (R-8° and L-6°). The patient has a previous history of bilateral multiple grade I and II ankle sprains in the last two years with no prior rehabilitation or intervention methods implemented.

Differential Diagnosis: subtalar joint instability, subtalar joint contracture, syndesmosis sprain, osteochondral defect, triceps surae dysfunction, and achilles tendonitis.

Treatment: The patient’s athletic activity was suspended and he was referred to the orthopedic team physician. The orthopedic team physician diagnosed the patient with bilateral gross functional impairment of the subtalar and talocrural joints secondary to severe joint contractures and adhesions. An initial rehabilitation program was implemented that consisted of a warm whirlpool, grade III and IV joint mobilizations, static stretching for the heel cord using a slant board, and PNF hold-relax for the hamstrings. During the days off from rehabilitation, the patient was encouraged to continue with the stretching techniques to increase extensibility of the muscles to improve overall lower extremity flexibility. As the patient’s function progressed, the rehabilitation program was modified to include progressive resistance exercises using Theraband® in single planes progressing to multi-planar activities. Therapeutic exercises stressing balance and proprioception were incorporated into the program as well. At the end of the eight-week rehabilitation program, the patient was cleared for athletic activities with proper monitoring by the athletic trainer. During functional activities, the patient’s athletic ability was noticeably hampered during jumping activities, but otherwise no functional regression was noted.

Uniqueness: Residual problems associated with joint contractures and adhesions have been reported in post-operative cases when prolonged immobilization occurred, and/or with inadequate rehabilitation. This case is unique because despite a previous history of bilateral multiple grade I and II ankle sprains in the last two years, the patient is relatively young to be suffering from non-traumatic bilateral ankle pain causing immobility during activity as a result of severe joint contractures and adhesions. Conclusions: The relationship between joint sprains and development of joint contractures and adhesions demonstrates that the pathophysiologic occurrence of bilateral deficits in foot and ankle motions can occur in young physically active individuals as a result of improper care. The patient’s foot and ankle joint contractures and adhesions predisposed him to biomechanical dysfunction, thereby decreasing his athletic ability. Repetitive, dynamic forces to supporting structures without ample time
for restoration will result in significant restriction of joint motions, severe joint pain, joint contractures, and adhesions. Rehabilitative interventions can greatly improve function following injury, as compared to simply allowing the injured tissues to heal without treatment and returning to participation when pain and swelling have sufficiently subsided. Implementing an aggressive rehabilitation program using a wide variety of therapeutic exercises aids in reversing joint adhesions and contractures. In addition, clinicians must provide adequate patient education following injuries, stressing the phases of healing and rehabilitation. Without this, joint contractures and adhesions can develop and lead to impaired athletic ability. **Word Count:** 598