BILATERAL EXERTIONAL COMPARTMENT SYNDROME INVOLVING ALL 4 COMPARTMENTS OF LOWER LEG
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Background: A 19-year-old female sophomore Division I soccer player endured chronic bilateral lower leg pain. After off-season conditioning, the athlete presented with pain that started during warm up runs and worsened during stadium runs. The athlete had a history of bilateral tibial stress syndrome. Initially, the pain was reported as dull and achy which was most noted at the push-off phase of gait. The athlete was point tender over the origin of the Achilles tendon into the lower aspect of the gastrocnemius bilaterally. The athlete reported pain with limited plantar flexion, but had full strength with all four ankle motions. Upon arrival to the Athletic Training Room, ATC applied an ice cup massage with stretching. Athlete reported to the family physician within 3 weeks of returning home for an evaluation. The evaluation showed early stages of exertional compartment syndrome. The Physician tried Therapeutic Fascia Release, which decreased pain for the summer by stretching the fascia. Upon returning for preseason, the athlete reported to the team physician for follow-up. The athlete’s most symptomatic compartment was the superficial posterior compartment, bilaterally. Compartment pressure testing showed some degree of involvement of all 4 compartments bilaterally. The athlete returned to tolerable training for 2 weeks until pain was too severe. At that point she agreed to surgical intervention.

Differential Diagnosis: Gastrocnemius Strain, Tibial Stress Syndrome, Bilateral Exertional Compartment Syndrome. Treatment: During athlete’s pre-participation physical, it was noted that she had a history of tibial stress syndrome and exertional compartment syndrome. During the surgery, the posterior tibialis muscle was found to have an extra layer of fascia, forming a 5th compartment. The orthopedic surgeon performed bilateral release of all 5 lower leg compartments. The athlete was told to elevate, apply ice to both legs and walk on crutches with minimal activity. On postoperative day #1, the athlete followed up with team physician because she had severe burning pain over the course of the night. Her legs were immediately elevated. She did not experience any paresthesia into the feet; she had no difficulty moving her toes. Dressings were completely removed and wounds were examined. Dressings were reapplied and the athlete was instructed to elevate her legs when possible and follow up in 3 days. Treatment for postoperative days 3-14 remained the same with occasional check-ups on pain, sutures and medication. At postoperative day #15, athlete’s sutures were removed, crutches were no longer needed, and legs were loosely wrapped in elastic bandages. The athlete was instructed to see ATC for rehabilitation. The athlete began a rehabilitation program, which included lower leg range of motion and cardiovascular exercises. Rehabilitation included a continuation of icing with elevation, compression at night, ankle pumps, ROM a-b-c’s, and biking. By the end of one week of rehabilitation the physician recommended pool workouts.

Uniqueness: In most cases with compartment syndrome, there are only 4 compartments, but in this athlete there was the existence of a 5th compartment located just posterior to the tibia. Also, with most cases of compartment syndrome only the anterior and lateral compartments are involved, it is rare to have all four compartments involved. During the surgery, it was noted that the Tibialis Posterior muscle had an extra layer of fascia surrounding it, which separated it from the rest of the deep posterior compartment. This athlete had abnormally thick fascia which contributed to the high pressure and the involvement of all 5 compartments. Conclusion: Compartment syndrome, though common in lower leg sports, usually does not involve five compartments. The inclusion of the 5th compartment intensified pain and discomfort for this athlete.