Low Leg Pain in College Softball Athlete

Eric Moogerfeld, ATS; Jason Craddock, EdD, ATC, LAT, CSCS; Shawn D. Felton, EdD, ATC, LAT *Florida Gulf Coast University, College of Health Professions and Social Work

Abstract

The athlete is a 19-year-old female college softball player. The athletes prior medical history includes generalized lower back pain, sciatica, and multiple lateral ankle sprains. The athlete came in complaining of a dull and achy pain in her lower left leg that has bothered her for eight months and increases with activity. The athlete denied any specific mechanism of injury. All ROM and MMT were equal bilaterally with all ankle and knee ROMs. Negative squeeze test, negative bump test, negative tap test, and negative calf raise test. The athlete also took an intracompartmental pressure which showed that the athlete had increased pressure in all four of her compartments. The athlete was referred for surgery a four compartment fasciotomy release. This case is unique because the athlete did not present any weakness with dorsiflexion, plantarflexion, and inversion as seen with other cases of chronic exertional compartment syndrome. The athlete did not present with the traditional mechanism of injury. This case is also unique because the athlete was diagnosed with compartment syndrome in all four compartments unilaterally which is uncommon compared to the normal bilateral appearance. The results of the inter-compartmental testing were before test: (mm/Hg) Anterior:16, Lateral: 15, Posterior Superficial: 12, and Posterior Deep:8, after test: (mm/Hg) Anterior:21, Lateral: 31, Posterior Superficial: 24, and Posterior Deep:28, and 5 minutes after test: (mm/Hg) Anterior:17, Lateral: 32, Posterior Superficial: 19, and Posterior Deep:29.The results are unique because the athlete was positive for compartment syndrome in at least one compartment in all three stages of testing bilaterally. After a four compartment fasciotomy, the athlete felt immediate relief.

Introduction

CECS is classified as when at least one of the four compartments of the lower leg has an intracompartmental pressure higher than the normal pressures set for the compartment pressure measurements. Still to this day there is no explanation for why CECS happens but increased activity is known to cause symptoms and increase intracompartmental pressure in athletes with CECS. Unfortunately the symptoms of CECS can be confused for other pathologies such as medial tibial stress syndrome, neuropathy, stress reaction, nerve entrapment syndromes, and stress fractures. Because there isn't a non-invasive way to diagnose CECS and CECS has many similar symptoms as other pathologies, CECS is usually misdiagnosed or unrecognized for months.

Background

- 19 year old female
- College softball player
- History of low back pain, sciatica, and multiple lateral ankle sprains
- 5'7
- 170 lbs.
- Plays infield

Clinical Presentation

- Complains of dull and achy pain that increases with activity in her lower left leg.
- States that neither rehabilitative exercises nor NSAIDS help
- Equal bilateral ankle and knee ROM
- Equal bilateral MMT of ankle and knee ROM
- No pain was noted during palpation
- X-rays were taken and were negative

Differential Diagnosis

- Peripheral neuropathy
- Chronic exertional compartment syndrome
- Stress reaction

Intracompartmental Pressure Test

Compartment pressure (mm/Hg)	Anterior compartment	Lateral compartment	Posterior superficial compartment	Posterior deep compartment
Before test	16	15	12	8
After test	21	31	24	28
5 min after test	17	32	19	29

Anything equal or higher than 15 mm/Hg before test, 30 mm/Hg after test, or 20 mm/Hg after test results in a positive test for chronic exertional compartment syndrome.

Treatment

The following day after the evaluation, the athlete elected to undergo a four compartment fasciotomy that was recommended by the orthopedic surgeon. The surgery was a success and the athlete is pain free and has begun to go through a rehabilitation protocol.

Uniqueness

This case is very unique compared to other cases of chronic exertional compartment syndrome. The athlete was diagnosed with compartment syndrome in all four compartments and with numbers that were above the normal values in all three stages of the intracompartmental pressure testing. The patient's symptoms were only on the left side which is rare because most cases of chronic exertional compartment syndrome are bilateral in 70%-80% of cases. The athlete experienced relief after the surgery which indicates that all the compartments have successfully decreased in pressure. Studies have shown that there is a 50% success rate in relief of symptoms after a deep posterior compartment release and 80% success rate with the other three compartments. This case is also unique because the sport with the most incidences of CECS are running sports which is contrary to the case because the athlete is a softball player. the athlete did not present any weakness with dorsiflexion, plantarflexion, and inversion as seen with other cases of chronic exertional compartment syndrome

Conclusions

- This case highlights the clinical presentation, diagnosis, and treatment of this unique case of chronic exertional compartment syndrome. It is imperative for Athletic Trainers to recognize the signs and symptoms of chronic exertional compartment syndrome and to know that if this pathology is suspected pathology, that it needs to be referred to an Orthopedic Doctor for further evaluation. This pathology is very debilitating to athletes which is why it is imperative not to dismiss lower leg injuries as medial tibial stress syndrome or a stress reaction.