

Chronic Exertional Compartment Syndrome – An Introduction

We have all heard of compartment syndrome. This is a medical emergency where increased pressures within a compartment can lead to rapid ischemia, muscle damage, and even potential amputation after a trauma or injury.

How many of us have heard of chronic exertional compartment syndrome (CECS)?

CECS is a cause of chronic exertional leg pain. Most often seen in young runners and elite athletes, it is a relatively unknown and underdiagnosed condition. Its incidence and pathophysiology are not well understood. One theory suggests a noncompliant fascia that cannot accommodate the expansion of muscle volume during exercise, causing increased intracompartmental pressures.

Suspect CECS with athletes who present with chronic anterior/lateral leg pain that worsens with prolonged use and resolves shortly upon cessation of activity. Most cases will occur in the anterior or lateral compartments. Classically, these athletes will be able to tell you that a specific time, distance, or intensity will bring on the symptoms, characterized as burning, aching, cramping, or pressure. It usually resolves fairly shortly if they stop the activity, unless they continue to push through the symptoms for longer durations. It is fairly common to be bilateral. They may have some numbness/tingling in the dermatomal distribution of the nerve that runs through the compartment and weakness of those muscle groups.

Physical exam is often normal at rest. Some people will have visible painless fascial herniations. On physical exam immediately after exercise, there may be pain on palpation of the muscles involved, pain with passive stretching of the muscles, and the compartments may be quite firm. No imaging is necessary but will commonly be done to rule out other diagnoses such as a stress fracture. The diagnosis of CECS can be made clinically but given its non-specific nature it can be confirmed using immediate post exercise intracompartmental pressure testing. If confirmed, a surgeon may be consulted for an ELECTIVE fasciotomy.

The differential diagnosis includes medial tibial stress syndrome (shin splints), stress fractures, fascial defects, nerve entrapment syndromes, popliteal artery entrapment syndrome, and vascular or neurogenic claudication.

It is important to note that shin splints present with pain on the medial border of the tibia. Shin splints are NEVER lateral! A high level of suspicion is required for the diagnosis of ant/lat CECS as all imaging will be reported as normal.

While uncomfortable, there is no evidence to suggest that the pain from CECS indicates any muscle damage or has long lasting implications. Modified activity is a reasonable treatment option. People may choose to avoid continuous running and opt to bike, swim, skate or play shorter shifts. Hopefully this brief introduction sheds some light on the subject.

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