ORTHOSPORTS

QUESTION FOR PHYSIOTHERAPISTS

QUESTION | These 2 questions follow on from the topic of Chronic Exertional Compartment Syndrome presented at the Orthosports lecture series in 2018 on lower leg pain.

- **What are the key features that will make you consider Chronic Exertional Compartment Syndrome as a diagnosis?**
- **Are there clinical features when assessing a patient that make you feel that this is NOT Chronic Exertional Compartment Syndrome?**

ANSWER | Chronic exertional compartment syndrome (CECS) is one of the common causes of exertional lower leg pain, the others being tibial periostitis, tibial stress fracture and popliteal artery entrapment syndrome.

CECS should primarily be diagnosed on the clinical history. The most important point here is that the pain should be claudicant or crescendo in nature. In a typical case the patient should be pain free outside of exercise, and develop symptoms with exercise, typically which involves running. The patient is also generally free of pain at the commencement of exercise. This differs from periostitis where there may be pain initially that warms up and improves with activity. As the exercise continues there will be a point of onset of pain, which is usually consistent with each bout of exercise (eg. Pain always comes on after 10minutes/after running 1km). The pain then builds with continuation of exercise and may crescendo to a point that the patient may need to stop running due to pain. Subsequent to this the acute pain will settle within a short period of rest (perhaps 5-10 mins), and the patient may become pain free and able to resume exercise. The pain will typically return again, possibly at a shorter time interval. Outside of activity the pain should resolve. This contrasts with both periostitis and tibial stress fracture in that these patients will typically have pain that is worse post exercise.

The location of the pain is also important. Crescendo pain that occurs anterolaterally really has few potential causes and CECS affecting either the anterior or lateral compartment is top of the list. The differential diagnosis may include lumbar radiculopathy. When the pain is around the calf then there are other potential causes of the symptoms, including a vascular aetiology such as popliteal artery entrapment syndrome or arterial stenosis.

Examination findings at rest may be few. Rarely there may be a feeling of increased tension in the muscle compartment. If muscle hernias are detected in the anterior or lateral compartments, then this is highly suggestive of CECS. A complete neurovascular examination is important to exclude a medical cause of the lower leg pain such as a true arterial narrowing. If possible then a post exercise examination should be performed and may demonstrate an increase in tension on palpation of the affected compartment.

At this stage the gold standard of investigation continues to be intra-compartmental pressure measurement using a needle or catheter attached to a saline pressure gauge. A raise in pressure greater then 30mmHg at one-minute post exercise is diagnostic of a CECS, as per the Pedowitz criteria

Fig 1. Pressure testing for anterior compartment syndrome

There are some features that would make consideration of compartment syndrome less likely. These may include pain which is worse with commencement of exercise and improves with activity, which is suggestive of tibial periostitis. Pain that persists for hours post exercise could be periostitis or a stress fracture. Constant or night pain is not typical of CECS and should suggest another cause. This could include either neuropathic pain, such as with a lumbar radiculopathy, or development of a chronic pain syndrome.

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