Extend Abstract

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Orthopaedics-2020: Postoperative Outcomes of Patients Undergoing: A Case Series - Justin Turcotte

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Exercise induced compartment syndrome (EICS) is a rare condition that presents as pain, tightness, or feeling of pressure, most commonly in the leg, during exercise. Sometimes paresthesias, numbness, or weakness develop in the affected compartments, typically after 5-10 minutes of exercise. With cessation of exercise, the symptoms abate.Some patients develop muscle herniations. First described by Mavor in 1956 as anterior tibial syndrome, the pathophysiology is theorized to result from transient ischemia due to increased intramuscular pressure during exercise that results in decreased blood flow in the affected compartment although others have questioned that.A positive diagnosis of EICS is based upon clinical findings, and can be confirmed by the frequently cited Pedowitz Criteria, using intramuscular pressure assessment as measured by handheld manometry:(1) a pre-exercise pressure greater than or equal to 15 mm Hg, (2) a 1 minute post-exercise pressure of greater than or equal to 30 mm Hg, or (3) a 5 minute post-exercise pressure greater than or equal to 20 mm Hg. The relevant anatomy of lower extremity EICS includes the four compartments of the leg: the anterior compartment, which consists of the anterior tibial, extensor hallucis longus, extensor digitorum longus, and peroneus tertius muscles; the lateral compartment (peroneus longus and peroneus brevis muscles) the deep posterior compartment (posterior tibial, flexor digitorum longus, and the flexor hallucis longus muscles); and the superficial Posterior compartment (soleus, gastrocnemius, and plantaris muscles). Conservative treatment of EICS consists of rest, activity modification, physical therapy and gait retraining, amongst other treatments.Surgical intervention is indicated in patients with a history of pain during exercise that relieves with rest, paresthesia in the associated dermatome, weakness or foot drop; a physical examination finding of firm compartments at rest or following stress testing, palpable muscle herniations or facial defects, and objective weakness after stress testing; and a positive result on ≥ 1 of the compartment pressure criteria. The gold standard surgical treatment for EICS is open fasciotomy; endoscopic release techniques have been proposed but are supported by limited evidence. Data supporting the efficacy of surgical intervention are mixed, with a broad range of outcomes reported. A 2016 meta-analysis of 1,596 patients across 26 studies found that at a mean follow up time of 48.8 months, surgical treatment of the lower leg resulted in a cumulative clinical success rate of 66%, satisfaction rate of 84% and rate of return to previous or full activity of 75%.We evaluated a series of patients undergoing open fasciotomy for EICS of the lower leg in our institution to assess postoperative outcomes.

Twenty-five patients were followed for an average of 3.26 ± 1.50 years postoperatively. Patients had an average age of 29.96 ± 14.33 years, BMI of 27.86 ± 5.17 m/kg2, and were 80% female, a higher percentage than reported in other studies. Sixteen patients underwent bilateral fasciotomies (64%), with 4 patients (16%) receiving two compartment and 21 (84%) receiving four compartment release. Three revisions were performed for symptom recurrence and three for evacuation of postoperative hematoma. Postoperative wound complications, defined as hematoma or cellulitis requiring antibiotics, occurred in 6 patients (24.0%). Twenty-four of 25 patients (96.0%) achieved confirmed return to function (sport, work or activities of daily living)

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