7. Functional Popliteal Artery Entrapment Syndrome (FPAES); A Poorly Understood and Often Missed Diagnosis Frequently Mistreated

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OBJECTIVES: Functional popliteal artery entrapment syndrome (FPAES) is an uncommon overuse injury in young physically active adults manifest by neuromuscular symptoms (gastroc/soleus cramping, plantar paresthesias) and commonly confused with chronic recurrent exertional compartment syndrome (CRECS).

This study evaluates the diagnostic testing, mechanism of injury, and treatment differences between FPAES and CRECS.

METHODS: Between 1987-2007, 800 patients (513 females, 287 males) mean age 28.5 years were surgically treated for the diagnosis of CRECS and/or FPAES. Compartment pressures were performed on all patients with anterior lateral or posterior superficial calf symptoms (normal pressures <=15mm). Non-invasive stress positional plethysmography was routine. Stress positional MRI/MRA was performed on patients with positive plethysmography and symptoms consistent with FPAES.

RESULTS: 757 of the 800 patients (95 %) had elevated compartment pressures (>=25mm) and fasciectomy performed for CRECS under local anesthesia. [Anterior lateral =508; posterior superficial=191; distal deep posterior =101]. 139 (18 %) had positive stress plethysmography but no symptoms. 43 patients had positive stress plethysmography, appropriate FPAES symptoms, and normal compartment pressures, (27 female, 16 male) mean age 26.6 years. All 43 had MRA/MRI demonstrating normal musculotendonous anatomy and lateral neurovascular compression with plantar flexion. Under general anesthesia, all had excision of the soleal band with relief from symptoms. 19 of the 43 FPAES patients (44%) had CRECS releases done prior to or after FPAES surgery. Follow up arranged from 12-240 months.

CONCLUSIONS: FPAES and CRECS occur in the same population with similar symptoms but require different treatment.