

## **A Case of Insidious Calf Pain**

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**HISTORY:** 28 year old female with a history of insidious onset of bilateral calf pain temporarily related to exercise/activity that had been chronic for several years and increased in intensity and severity. Her usual exercise routine consisted of biking for 1/2 hour and leg presses, she denied overexertion. She noticed a diffuse, dull, achy pain with hardening in her calves which occurred after exercising, most notable in the evenings after exercises, and had extended for a period of 2-3 weeks. Lingering calf pain woke patient up at night on nights after she has been active and only affected her calves, was not related to swelling of the muscles, red inflamed joints, or any rashes. She denied any actual cramping of the muscle or any dark cola colored urine associated with these episodes. Patient did not experience any specific weakness: she could go up and down a flight of stairs, get into and out of chairs/bed, reach her arms over her head. No fixed numbness or tingling, changes in her voice, double vision, ptosis, or shortness of breath with activities. No recent changes in her medications associated with her symptoms. Nothing alleviated her symptoms besides curtailing her exercise program and standing for long periods and exercise exacerbated her symptoms.

**PAST MEDICAL HISTORY:** Migraines, hypothyroidism, asthma, iron deficiency anemia, depression, anxiety, gastritis, and IBS.

**PAST SURGICAL HISTORY:** Muscle biopsy in 2013.

**MEDICATIONS:** Sumatriptan, butalbital-acetaminophen-caffeine, synthroid, montelukast, clonazepam, prilosec, ferrous gluconate, topiramate, desvenlafaxine, fluticasone, eszopiclone, and albuterol.

**ALLERGIES:** Latex, environmental, seasonal, seafood, and sulfa.

**SOCIAL HISTORY:** Denied illicit drug, tobacco, or alcohol use.

**FAMILY HISTORY:** Negative for bone or joint disease, PVD, vascular or autoimmune disease.

**PHYSICAL EXAMINATION:** Patient noted to have normal vital signs, in no acute distress. Heent: NC/AT, PERRL, EOMI, Optic disk margins clear, spontaneous venous pulsations present. Visual fields full. No thyromegaly, oropharynx clear. CVS: S1, S2+, RRR, no M/R/G. Resp: CTAB. Msk: Back: Full ROM, neg straight leg raise, no vertebral body tenderness. No tension or prominence in paraspinal muscles. Extremities: All 4 extremities without edema, clubbing or cyanosis. Gait: Normal and non antalgic, able to toe walk without difficulty. Hip and Pelvis and Knees b/l: No swelling, erythema, ecchymoses or deformity. No palpable effusion or warmth. Non tender to palpation. Full strength. Calves: no deformities, mildly underdeveloped on palpation, no firmness or tenderness. Neurovascular: 2+ DP pulses in both feet, capillary refill <3 seconds, sensation intact to light touch, 5/5 strength throughout lower extremities.

**DIFFERENTIAL DIAGNOSIS:** 1) Chronic exertional compartment syndrome 2) Vascular insufficiency 3) Popliteal artery entrapment 4) Myofascial pain 5) Inflammatory myopathy 6) Deep venous reflux.

**TREATMENT AND OUTCOMES:** EMG/NCS were normal. CK ranged from normal to a high of 499, with most recent normal. Thyroid studies were normal. ANA was positive and muscle MRI did show patchy areas of hyperintensity in vastus lateralis and gastrocnemius of unclear significance. Muscle biopsy showed variability in fiber size and type 1 predominance of unclear significance. Subsequent CPT2 testing was normal. Vascular ABI studies were normal. A progressive treadmill run for this patient lasted 5 minutes. The patient did have progressive symptoms of tightness, pain, but not tingling and weakness and on exam did have decreased strength after exertion with dorsiflexion, eversion, but not inversion or plantarflexion. Calf circumference was measured pre and post exercise and was found to increase in the bilateral legs. MRA of lower extremities (not done under plantar flexion protocol) revealed no significant vascular or other abnormality identified in the visualized portions of the bilateral lower extremities. There was no evidence of popliteal artery entrapment syndrome. Compartment pressure testing completed and remarkable for elevated pressures at lateral compartment which was not consistent with where the patient was complaining of pain. Angiogram of bilateral lower extremities with stress views revealed bilateral popliteal artery entrapment syndrome of the behind the knee popliteal artery.

**FINAL WORKING DIAGNOSIS:** Bilateral popliteal artery entrapment.

**TREATMENT AND OUTCOMES:** Prior to angiogram, patient was referred to orthopaedic surgery for further evaluation and possible surgical release and subsequently was referred to vascular surgery for possible outflow problem given her swelling with prolonged activity. After angiogram of bilateral lower extremities revealed PAES, patient underwent bilateral popliteal artery release and resection of the medial head of the gastrocnemius muscle. Patient symptomatically improved and reported improvement in pain with increased levels of activity.