Muscular Vein Thrombosis Previous to Immobilization in Acute Tendo Achilles Rupture: Case Report and Review of Literature

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Introduction/Purpose: Thromboembolic complications during lower-limb immobilization after Achilles tendon ruptures are common. Both operative and nonoperative treatments of Achilles rupture include a period of immobilization which is a well-documented risk factor for distal vein thrombosis. Curiously, there is a gap in literature linking the diagnosis of thromboembolic events to the Achilles rupture previous to the immobilization. The term DTV refers to the anterior/posterior tibial or the peroneal veins, i.e. those that correspond to arterial structures and comprise the profound vein system. Although still with little agreement, the role of muscular vein thrombosis or isolated gastrocnemius or soleus vein thrombosis are gaining relevance within the current published data, despite there is no report of it association with tendo Achilles rupture before or after the initiation of treatment.

Methods: Case report: Five consecutive patients with a diagnosis of traumatic Achilles rupture were evaluated. All patients sustained non traumatic injuries. One of the patients was a heavy smoker, and two of them had BMI over 25. We routinely execute an ultrasound to locate the rupture site and at the same time color ultrasound Doppler was performed by an expert in vascular echography, before the initiation of treatment. In all cases a thrombosis of the calf muscle veins was found. Surgical treatment was not advice in any of the patients and definitive treatment was conservative.

Results: Calf muscle veins are deep veins in the distal lower extremity that are nonpaired and not associated with named tibial arteries. These veins make up a complex venous system of the musculature of the posterior leg and include the soleal and gastrocnemius veins that run as sinusoids within the muscles of the same name. The soleal sinusoids may drain into the midperoneal or posterior tibial veins, whereas the gastrocnemius sinusoids may empty directly into the popliteal vein. Although the real incidence of MVT is extremely variable, in patients presenting with symptoms and signs suspicious for distal vein thrombosis, muscular veins have been shown to be the most common location for thrombosis with 23% to 41% of all patients.

Conclusion: Our group of patients was diagnosed before immobilization was established. One plausible explanation could be that the muscle trauma associated with the tendinous rupture may have some influence in the thrombi generation triggering endothelial dysfunction, or affecting the calf muscle pump creating venous stasis, conditions that favour the VTE appearance. It is our perspective that although not well stablished there is at least a theoretical risk of further propagation to the profound venous system and subsequently to the pulmonary system, and this fact not only conditions the treatment of MVT itself, but also the treatment of the Achilles rupture.